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SOME OBSERVATIONS ON THE INTERPRETATION OF THE SINGLE INTRADERMAL COMPARATIVE TUBERCULIN TEST

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INTRODUCTION

Under the Isle of Man Board of Agriculture and Fisheries (Tuberculosis) Attested Herds Scheme, which commenced in April, 1949, cattle are valued and tattooed with an identifying mark in the right ear prior to the application of the single intradermal comparative tuberculin test (Weybridge tuberculin).

Animals reacting to the test are removed from the herd as soon as practicable and are slaughtered.

In cases where the percentage of reacting cows exceeds 75 it is the practice to remove all the cows.

The ears are cut from the hide and hung with the lungs, liver, head, mesenteric fat and lymphatic glands.

The carcase and liver in each case is marked with a corresponding number.

It is thus possible to identify each animal with certainty and to relate each *post-mortem* finding to the reacting animal.

The *post-mortem* examinations carried out were not as thorough as could have been wished, approximately 10 minutes being the maximum spent on any carcase and organs.

Post-mortem findings are based on macroscopic lesions only, the *post-mortem* examinations being carried out by the veterinary staff.

RESULTS

It became evident soon after the commencement of the scheme that, by relying strictly on the basis of interpretation as laid down by the Ministry of Agriculture and Fisheries (technique and interpretation of the single intradermal comparative tuberculin test), which is intended to be used in conjunction with previous test history, too many animals were being regarded as inconclusive reactors, which were in fact affected with tuberculosis.

To illustrate this point the history of a number of inconclusive reactors occurring in one of the earlier herds to be tested is given below. At the first test of this herd 63 animals were tested, 16 gave positive reactions and 21 inconclusive reactions. Four inconclusive reactors were sold for slaughter and were not retested.

The history of the remaining 17 is as follows :—

TABLE I

		1st test. mm. increase	2nd test. mm. increase	3rd test. mm. increase	4th test. mm. increase	Lesions present in
A.	A.	4	0	2	4	—
	M.	5	0	2	4	
B.	A.	7	5	0		
	M.	7	6	5		Lungs.
C.	A.	8	4	0		Lungs and liver.
	M.	9	6	9		
D.	A.	7	7			Lungs.
	M.	9	10			
E.	A.	4	5			Head.
	M.	7	8			
F.	A.	9	6			Lungs.
	M.	10	7			
G.	A.	4	5	0		Lungs.
	M.	4	5	3		
H.	A.	2	3	1		Lungs.
	M.	4	6	6		
I.	A.	4	6			Head.
	M.	4	9			
J.	A.	8	8			Generalised tuberculosis.
	M.	10	10			
K.	A.	7	5	7		Lungs.
	M.	9	5	12		
L.	A.	5	6	4		Lungs.
	M.	6	6	6		
M.	A.	8	2	0	4	Lungs.
	M.	10	4	3	21	
N.	A.	8	8	3		Lungs.
	M.	9	11	7		
O.	A.	6	5			
	M.	6	8			Head.
P.	A.	9	7			
	M.	11	8			Mesentery.
Q.	A.	3	5			Lungs.
	M.	3	9			

Non-specific infection was present in the herd but even interpreting the results as if non-specific infection was absent, only six animals should have been removed on retests.

All these animals with the exception of (A) have been removed from the farm and slaughtered and all have shown lesions of tuberculosis. (A) will be retested, and unless this animal is completely negative at the next test she also will be slaughtered.

Five other instances in which the results of tests over a period of approximately one or two years are available can be quoted.

TABLE II

Heifer No. 1	* 1st test, December, 1948	2nd test, August, 1949	*Post-mortem* examination
	Increase	Increase	
	A. = 2	A. = 11	Slaughtered Calcified lesion in
	M. = 10	M. = 12	mesenteric gland.

* A private test carried out prior to entering Attested Scheme in August, 1949.

Heifer No. 2	* 1st test, August, 1949	2nd test, June, 1950	*Post-mortem* examination
	Increase	Increase	
	A. = 6	A. = 4	Slaughtered Calcified lesion in
	M. = 6	M. = 1.	mesenteric gland.

* Private test carried out prior to entering Attested Scheme in June, 1950.

Table II (*continued*)

Imported attested cow Test in England, May, 1949	2nd test in I.O.M., July, 1950	3rd test in I.O.M.	*Post-mortem* examination
Increase A. = 21 M. = 18	Increase A. = 5 M. = 10	Increase A. = 2 M. = 13	Calcified lesions in sub-parotid sub-maxillary and one mesenteric gland.

Cow No. 1

1st test, April, 1949	2nd test, June, 1949	3rd test, December, 1949	4th test, February, 1950	5th test, November, 1950	*Post-mortem* examination
Increase A. = 0 M. = 0	Increase A. = 5 M. = 4	Increase A. = 4 M. = 5	Increase A. = 4 M. = 4	Increase A. = 5 M. = 10	Lungs (no note made of type of lesion).

Cow No. 2

1st test, July, 1949	2nd test, September, 1949	*3rd test, February, 1950	4th test, May, 1950	5th test, August, 1950	6th test, October, 1950	*Post-mortem* examination
Increase A. = 3 M. = 2	Increase A. = 4 M. = 0	Increase A. = 2 M. = 2	Increase A. = 3 M. = 6	Increase A. = 5 M. = 0	Increase A. = 2 M. = 13	Calcified lesion in bronchial lymphatic. Early lesions in lungs.

* Reactors found in the herd at the February test.

*Cow No. 3

1st test	2nd test	3rd test	4th test	*Post-mortem* examination
Increase A. = 8 M. = 11	Increase A. = 6 M. = 3	Increase A. = 4 M. = 6	Increase A. = 2 M. = 6	Generalised tuberculosis.

* Imported from an attested herd.

In view of these results, together with others of a similar character, it is now the procedure, when interpreting the results of all first tests of herds, that where one or more positive reactors are found in a herd, all animals showing mammalian increases equal to, or greater than, the avian increases are considered to be reactors and are slaughtered.

It is considered that this practice is justified in view of the findings on *post-mortem* examination since altering the basis of interpretation.

The results of the *post-mortem* examination of 1,165 animals are summarised as follows :—

Table III

Animals showing	
1. Equal avian and mammalian increases with tuberculosis lesion on *post-mortem* examination.	140 (12·01 per cent. of total reactors).
2. Equal avian and mammalian reactions with *no tuberculosis lesion* on *post-mortem* examination.	12 (1·06 per cent. of total reactors).
3. Mammalian not exceeding avian increase by more than 4 mm. with tuberculosis lesions on *post-mortem* examination.	264 (22·6 per cent. of total reactors).
4. Mammalian not exceeding avian increase by more than 6 mm. with tuberculosis lesions on *post-mortem* examination.	161 (13·8 per cent. of total reactors).
5. Mammalian exceeding avian increase by more than 6 mm. with tuberculosis lesions on *post-mortem* examination.	588 (50·4 per cent. of total reactors).

It should be pointed out that of the 12 animals in group 2 in which no lesions were found, four were young cattle in which the mesenteric glands and fat had been discarded by the slaughtermen ; in another, the mediastinal lymphatic glands were absent having been accidentally removed at slaughter.

It is possible that in these cases lesions of tuberculosis were present in the discarded material.

It will be noted that approximately one-third of the animals showing lesions of tuberculosis on *post-mortem* examination gave reactions, which according to the Ministry of Agriculture and Fisheries interpretation would be considered as " inconclusive."

The practice of removing inconclusive reactors when positive reactors are also present at first tests is further justified by the reduction in the number of reactors which are found at subsequent tests.

Thus, percentage of reactors of the total number of second tests carried out up to September 30th, 1949, was 6 : May 5th, 1950, 4·4 ; August 31st, 1950, 3·9 ; March 31st, 1951, 3·8.

For a period during 1949 an attempt was made to classify the type of lesion found on *post-mortem* examination with a view to determining whether there was any relationship between the type of lesion and the type of reaction.

The table at the top of page 69 shows the classification used and the numbers of animals found in each group.

No finding of any significance emerged from this classification with the possible exception that, of the 72 animals with either single small caseous lesions or single small calcified lesions, 32 gave reactions lying in the group of inconclusive reactions previously discussed, *i.e.*, mammalian reactions not exceeding avian by more than 4 mm.

It is possible that with a more comprehensive classification and histological examination of the lesions some significant relationship might be found between the type of lesion and the type of reaction given by the animal.

	Generalised tuberculosis		Localised tuberculosis					
	Active	Passive	Single early lesion (small) caseous	Single large caseous	Single small calcified	Single calcified large	Few multiple lesions	Numerous multiple lesions
Number of animals	10	3	49	33	23	14	28	67

Reactions Given by Animals found to be Affected with Generalised Tuberculosis on *post-mortem* Examination

Of 65 animals found to be affected with generalised tuberculosis the majority gave definite positive reactions but 13 gave reactions which could have been considered as inconclusive.

Avian increase (mm.)	Mammalian increase (mm.)	Number of animals affected with generalised tuberculosis
0 to 4	0 to 8	9
0 „ 8	0 „ 8	3
0 „ 8	9 „ 20	33
0 „ 8	21 „ 40	8
9 „ 20	22 „ 40	11
19	15	1

The majority of animals found to be affected with generalised tuberculosis gave negative or slight avian reactions and positive mammalian reactions with an increase of between 9 and 15 mm.

Incidence of Tuberculosis in Manx Herds

The percentage of animals showing positive reactions at the first test was approximately 31·36, the majority of these being cows.

The percentage was not expected to be low in view of the fact that the majority of herds are flying herds. Reactions indicating non-specific infection (avian) have been found in almost every herd but " skin tuberculosis " is rare in home-bred cattle.

Desensitisation

Buxton & Glover (Tuberculin Test in Cattle, 1939) state that " provided fresh areas are chosen on each occasion there is little evidence of desensitisation with repeated tests."

This has not been found to be the case in the few animals retested at less than the 60-day period. The results of a number of infected cattle retested at short intervals are shown in the following table :—

Table IV

Cow	1st test	2nd test at 16 days' interval	Tuberculosis lesions found
	Increase (mm.)	Increase (mm.)	
No. 1	A. = 0 M. = 14	A. = 0 M. = 4	Retropharyngeal lymphatic gland.
	(7 days' interval)		
No. 2	A. = 3 M. = 10	A. = 1 M. = 6	Lungs.
No. 3	A. = 9 M. = 17	A. = 2 M. = 6	Lungs.
No. 4	A. = 6 M. = 10	A. = 4 M. = 5	Lungs.
No. 5	A. = 5 M. = 10	A. = 1 M. = 9	Lungs.
No. 6	A. = 2 M. = 8	A. = 1 M. = 0	Lungs.
No. 7	A. = 7 M. = 12	A. = 0 M. = 5	Lungs.
No. 8	A. = 5 M. = 7	A. = 4 M. = 5	Generalised tuberculosis.
No. 9	A. = 7 M. = 17	A. = 1 M. = 6	Lungs.

The animals were tested for the second time on the opposite side of the neck to that used for the first test.

In every case a decrease in the size of the reaction occurred. In three cases, Numbers 4, 6 and 8, the animals became " Negative."

Effect of Parturition on Sensitivity to Tuberculin

In an article in *The Veterinary Record* in October, 1946, Kerr, Lamont & McGirr stated that of 20 positive mammalian reactors, seven animals failed to react immediately after parturition.

Four animals have been noted in which parturition was imminent or had occurred during the period of the test and which gave completely negative readings but on *post-mortem* examination were found to be affected. One of these reacted at the subsequent test and tuberculosis lesions of long standing were found.

The other three were slaughtered because of the high percentage of reactors in the herd and tuberculous lesions were found.

Post-mortem Findings in Non-reactors

A number of non-reactors have been slaughtered because of the high incidence of tuberculosis in the herd.

Lesions of tuberculosis were found in approximately 50 per cent. of these animals. In two cases the lesions were extensive.

Delayed Reactions

Three delayed reactions were observed at the 96th hour, chiefly because of the vigilance of the owners concerned, and tuberculous lesions were found in each animal.

Retesting of Inconclusive Reactors

The writer is not aware of the interpretation used by the Animal Health Division of the Ministry of Agriculture and Fisheries when considering the results of tuberculin tests carried out on " inconclusive " reactors.

It is presumed that the same basis as that for herd test is used.

Under the Manx Scheme, in deciding which animals shall be retested in herds which have had one or more clear tests, it is now customary to classify all equal mammalian and avian reactions, all mammalian reactions exceeding avian by not more than 4 mm. and all mammalian reactions exceeding avian by not more than 6 mm., as inconclusive.

Equal reactions not exceeding 5 mm. are classed as non-reactors although occasionally even these are retested.

It is felt that this procedure is justified by the fact that animals have been found in all three groups which have given positive reactions on retest and found to be affected with tuberculosis on *post-mortem* examination.

It has not yet been possible to lay down any definite basis of interpretation in regard to animals which continue to give inconclusive reactions over several tests. A number of animals have been noted which gave inconclusive reactions over at least three tests and which finally gave negative reactions and have continued to do so in subsequent tests.

Others have been noted which gave a series of inconclusive reactions but which finally gave positive reactions and were found to be affected with tuberculosis.

The regular retesting of these types of animals until a definite conclusion is reached appears to be the only satisfactory method of dealing with them.

Primary Tuberculosis of the Udder

Three " breakdowns " in attested herds due to this condition have occurred since the commencement of the scheme. One animal was infected in each herd following infusion of the udder with penicillin.

In one instance the infected animal gave a positive reaction and in two instances " inconclusive " reactions. In one instance the condition was diagnosed early and only two calves reacted, but in the other two instances the official test was carried out approximately six months after infusion of the udder and in both instances every animal housed in the same byre as the animal with primary tuberculosis of the udder, reacted to the test. The lesions in the reacting animals were mostly confined to the retropharyngeal and bronchial lymphatics.

The writer has been astonished by the rapidity of the spread of infection in these two instances of primary tuberculosis of the udder, resembling that which might be spread by an animal suffering from " open " pulmonary tuberculosis.

The lesions in the three cases of primary tuberculosis of the udder were confined to the udder with one exception, this animal having a small caseous lesion in one retropharyngeal gland.

Discussion

The writer is of the opinion that when carrying out first tests of infected herds, an additional basis of interpretation to that advised by the Ministry of Agriculture and Fisheries should be used.

It is his view that, where infected animals are present, all animals showing equal avian and mammalian reactions or mammalian reactions exceeding avian reactions, should be considered to be infected with mammalian tuberculosis and removed from the herd irrespective of whether non-specific infection is present or absent.

Evidence is accumulating which would indicate that this procedure should also be adopted with animals which, although negative at the first test, show this type of reaction at the second herd test, provided reactors were present at the first test.

It is considered that unless this procedure is adopted the eradication of bovine tuberculosis from the herd will be unnecessarily prolonged, with the added danger of an infected animal causing a " breakdown " at a later date.

The writer is given to understand that the Animal Health Division of the Ministry of Agriculture and Fisheries has advised practitioners, when carrying out first tests, to use mammalian tuberculin only.

It is held that this method would eliminate the vast majority of infected animals but would also eliminate many non-specific reactors.

THE EFFECT OF VARIOUS FORMS OF FLUID REPLACEMENT DURING CIRCULATORY IMBALANCE IN THE DOG

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(*Continued from page 57*)

PART III

The Effect of Injections of Concentrated Solutions of Pure Heterologous (Bovine) Albumin on the Blood Pressure, Circulatory Plasma Volume, etc., and on the Survival Rate, during Hypotension and Shock

Introduction

The results obtained by the infusion of isotonic solutions of heterologous (bovine) albumin into dogs suffering from a state of post-operative shock have been described previously.* Their favourable nature prompted research into the possibilities of administering the albumin in the form of a concentrated solution. The reasons for this undertaking were:—

The method of giving infusions of fluids post-operatively as described during these investigations was not considered a practicable method for use under field conditions. To give a large infusion to a semi-conscious animal requires complicated infusion apparatus as well as time, constant supervision, and restraint. A method was therefore sought that would enable the infusion fluid to be given in a short period of time and without the use of special apparatus.

The distension of the *normal* vascular bed to the detriment of the organism by the infusion of large quantities has been shown to be probable by Green, Lewis and associates (1944), who demonstrated that the decrease in the resistance of the vascular bed during perfusion was due to vascular distension. Ahlquist (1949) also found that a lowering of resistance followed on an increased vascular pressure and he attributed this decrease in resistance to vascular distension and neurogenic reflex vasodilatation, resulting from increased pressure. This vasodilatation is important in the light of the findings of Landis & Gibson (1933) and Popper *et al.* (1935) that capillary permeability and dilatation are closely related.

It had been found during previous investigations on heterologous plasma infusions† that better therapeutic results attended the infusion of a quantity of fluid when it was administered in small amounts injected at intervals over a long period of time instead of one infusion of 20 c.c.

* *Vet. Rec.* **65**. 51-57.

† HARTHOORN, A. M. (1951). Unpublished report.

per kg. b.w. infused over a time interval of half an hour: amounts of, for instance, 5 c.c. per kg. b.w. followed by 2½ c.c. per kg. b.w. in two hours; another 2½ c.c. per kg. b.w. in three hours, and so on at progressively longer intervals of four, five and six hours until the whole dose of 20 c.c. per kg. b.w. had been administered.

Under this therapy the blood pressure would often return to normal and further injections could be withheld when less than half the usual quantity of fluid had been given.

Reasons were advanced at the time purporting to show that this phenomenon could be ascribed to the detrimental effects which follow the distension of the damaged circulatory system by a large bulk of fluid.

For this reason trials were subsequently carried out in which the usual quantity of heterologous albumin (1 gramme per kg. b.w.) that was usually infused as an isotonic solution was given as: a twice concentrated solution (10 per cent.) and a four times concentrated solution (20 per cent.). The same was also given as a half concentrated, or 2½ per cent., solution.

During this part of the investigations, however, it was noticed that the disadvantages which were originally observed as a result of the infusion of 20 c.c. per kg. b.w. were present after the injection of 1 gramme of albumin as a four times concentrated solution (only 5 c.c. per kg.) to almost the same degree. Apparently this was due to the rapid absorption of crystalloid fluid into the blood stream by the circulatory colloid that had been introduced. For this reason concentrated solutions were also given intermittently in subsequent infusions.

In this way a small amount of concentrated material was injected, using a " record " syringe and the ordinary type of needle usually employed for intravenous injections, at intervals of two, three, four hours, etc. By this means, instead of the first injection of 5 c.c. per kg. which was the amount injected when an isotonic solution was used, a first injection of 1¼ c.c. per kg. of the four times concentrated solution is administered and half this quantity after two hours. Another injection of half the first dose is made in three hours from the time of the second injection. This system of injections at definite spaced intervals was adopted during these investigations to enable critical comparison to be made between the various cases, and may probably be modified with advantage to suit the individual requirements of each patient when used under field conditions.

Comparison of the Effects of Isotonic and Hypertonic Albumin Solutions

From Fig. 1 it will be seen that the administration of hypertonic solutions seems to have considerable advantages over the use of isotonic solutions. The rise in the blood pressure during the first half hour tends to be smaller than that obtained with the isotonic solution, due to the smaller mechanical effect of the concentrated solution, but the subsequent rise more than makes up for this fault, the resulting curve being both steeper and higher. It should be pointed out that the actual amount of albumin injected was identical in all cases.

Possible reasons to explain this phenomenon have already been put forward in connection with the superior results obtained by the injection of plasma at intervals instead of one large dose, and it is suggested that a similar factor may be in operation here. The increased pressure in the circulation is now brought to bear more gradually and at the same time as the circulation improves.

In those cases which had suffered the loss of appreciable quantities of whole blood through haemorrhage, and where, unlike those cases in which the circulatory loss could be ascribed to plasma lost from the circulating blood stream alone, as in shock due to other causes, the administration of hypertonic albumin solutions resulted in dehydration. Although the blood pressure would rise to the usual height, it did not always remain there and in such cases it would fall steadily. At the same time, clinical evidence of dehydration sometimes was evident.

The finding of Coller & Maddock (1935, 1940) that a loss of water approaching 6 per cent. of the bodyweight is necessary before clinical signs of dehydration become evident, makes it likely that unobserved dehydration occurred in other cases of concentrated colloid administration. The reports of Popper *et al.* (1944) on the adverse effects of dehydration on the circulation would indicate that even in cases of sub-clinical dehydration, a detrimental effect is felt by the organism. Better results, therefore, might be expected with adequate hydration.

When an amount of saline solution equal to that which would have been added to the albumin solution if it had been rendered isotonic was administered *per os*, an improved result was obtained. The rise in blood pressure that resulted from the concentrated colloid injection was better maintained and the clinical improvement of the recipient animal seemed to be more evident. In subsequent cases, saline solution was administered by hypodermoclyster, or more frequently, by a Levine tube via the nostril into the stomach.

In cases where saline therapy was attempted alone, saline solution introduced into the stomach was not absorbed, and following its intravenous administration it was even found, during *post-mortem* examination of cases which had failed to survive, to have been excreted into the stomach. With the provision of an adequate colloid fraction in the blood stream, however, saline solution introduced into the stomach or under the skin appeared to be absorbed with rapidity.

The excellent results obtained with this form of shock therapy suggest that dehydration (in itself capable of causing shock, Davis, 1940; Darrow, 1940) was responsible for the failure in some of the early cases to obtain favourable responses from the administration of hypertonic solutions during the treatment of post-operative shock. After the institution of this concurrent administration of saline and hypertonic solutions by vein, better results followed the intravenous use of successively more concentrated solutions (see Fig. 1). The best results were obtained with

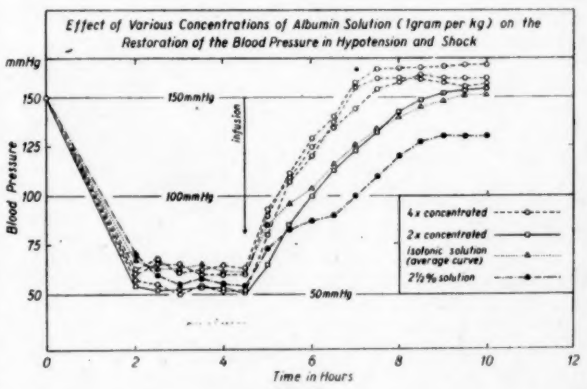

Fig. 1

the highest concentration used, *i.e.*, a 20 per cent. solution of albumin in physiological saline, or one four times more concentrated than isotonic albumin solution.

A study of Fig. 1 reveals that among the different concentrations used, the more concentrated the colloid given by vein the speedier and more pronounced the therapeutic effect and the rise in the blood pressure. It is striking that whereas the four times concentrated solution raised the blood pressure rapidly to quite its original height, the twice concentrated solution proved to be a little inferior, while the integration of the curves obtained from the therapy of shock with isotonic solutions shows a rise in the blood pressure which is much the same as, or only slightly better than, that of homologous and heterologous plasma. In spite of the differences in the speed of reaction to therapy, all these animals survived. This could not be reported of the half isotonic solution (2½ per cent.) which produced the smallest rise in the blood pressure of all the solutions. The recipient of this concentration of albumin solution died during the next 12 hours although the amount of albumin that it received was *identical* to that received by the other animals. Explanatory reasons for this result have been given previously in the report on the use of saline solution.* Although in this case the saline solution was not administered separately, on the basis of the report (Scatchard *et al.*, 1944) that 1 gramme of albumin is capable of holding approximately 18 c.c. of fluid, it can be assumed that the excess saline was allowed to escape from the blood stream and the same state of affairs exists as in those cases where the saline solution was administered separately.

These results show a considerable therapeutic advantage in the treatment of hypotension and shock with concentrated colloids over its treatment by isotonic solutions. This fact is extremely fortunate in the light of the separate finding that the administration of small quantities of concentrated colloid rapidly by vein concurrently with crystalloid fluid given by mouth or by hypodermoclyster was the only method of infusion therapy that was a practical proposition for use under field conditions or those prevailing in general veterinary practice.

The Combination of Colloid and Crystalloid Therapy

Several advantages accrue from the combined use of concentrated colloids administered by vein, and the concomitant administration of crystalloid fluid by other routes, in relation to general practice. Infusions of colloidal solutions have never been popular on account of the time taken for their administration by vein, and the intolerance shown by the animal to lengthy infusions. Originally several methods were explored in the hope of finding a practical one, including an infusion into the bone marrow of the tibia. None of these was effective, however, as the recipient, benefited by the infusion, would recover sufficiently to struggle or to damage the infusion apparatus. In these cases, unless constant restraint could be exercised, the infusion would have to be terminated before the animal had received sufficient for its needs.

On the other hand, injections of concentrated albumin are easily made intravenously. They can be given at maximum speed from a standard type of syringe fitted with the usual needle used for intravenous injections. Especially when the intermittent system of injections is used, as is recommended here, the quantities that have to be injected are not large. They are easily administered single-handed to the semi-conscious animal, or possibly with the help of a lay assistant.

With regard to the crystalloid solution, this is readily given under the skin, or by the oral route. In the unconscious animal, a nasal sound is easily passed, its position in the pharynx being readily verified by depression of the tongue with the finger, when the sound will be seen to pass posterior (superior) to the respiratory orifice.

The injection of concentrated albumin in the conscious animal has been found to induce considerable thirst, and these animals will drink and retain saline solution if they are supported, even when they are still so far under the influence of the anaesthetic that they are unable to raise the head. Some have been observed to drink while still showing nystagmus due to the anaesthesia. Water would be unsuitable for this purpose, as, on account of the considerable quantities that would be drawn into the blood stream by the albumin, there would be a danger of inducing a sodium deficiency. This, according to Popper, Elkington & Winkler (1944) and Holmes & Cizek (1951), is capable of causing dehydration in the face of an adequate water intake, while acute convulsions and death may ensue (Moyer, Coller and associates, 1944).

Using the method of resuscitation described above, all the advantages that are claimed for many of the different types of crystalloid solution (*vide supra*) may be utilised to the full, while at the same time an adequate circulatory volume is assured by the administration of a suitable colloidal solution, capable of drawing and maintaining them in the blood stream. In this way, it has been found possible to keep animals alive and to induce permanent recovery by the intravenous injection, every two to six hours, of a few c.c. of concentrated albumin solution, with saline being taken mostly voluntarily. These animals, due to the severe depression of the circulation and the blood pressure, and consequent shock, failed to survive following all other treatment except *intermittent* infusions of isotonic albumin, or plasma. Large single infusions of plasma, isotonic or concentrated albumin solution did not induce survival in these more serious cases.

Using the intermittent system of infusion of concentrated solution, the amount that is injected, as already indicated, is 1¼ c.c. per kg. as an initial dose, followed by ⅝ c.c. per kg. at an interval of two hours, and again after three hours, depending upon the condition of the patient. If this is worked out, for instance, for a dog of 8 kg. weight—say a fox terrier—the procedure is an initial injection of 10 c.c. followed by intermittent injections of 5 c.c. For practical purposes this may be taken as a first injection of 5 c.c. followed by intermittent injections of 2½ c.c. for every 9 lb. bodyweight (avoirdupois).

DISCUSSION

The treatment of post-operative shock in animals (dogs) in the manner suggested in this tripartite paper, resulted in a marked drop in the mortality among established cases. The infusion of plasma (homologous and heterologous) and albumin solution in these cases resulted in a mortality of 15 per cent. So far as could be determined by specialised procedure such as the repeated determination of the blood and plasma volumes, the state of shock that was being treated was identical with that which resulted in a mortality of 100 per cent. in untreated control animals.

The treatment of this degree of shock by infusions of physiological saline solution, protein digests and gelatine solution, also resulted in a mortality of 100 per cent.

* *Vet. Rec.* 65, 35-40.

Most of the deaths included in the 15 per cent. mortality, obtained in cases treated with plasma and albumin solution, could be ascribed either to the infusion of too large a bulk (20 c.c. per kg. b.w. in half an hour of isotonic albumin solution or plasma) or to the rapid administration of 1 gramme per kg. b.w. of albumin as a concentrated solution, or were due to the infusion of hypotonic solution of albumin solution, or plasma after saline.

No death actually occurred in any of those cases (12 cases, nine treated with albumin and three with plasma) which were treated by *intermittent* infusions of albumin solution or plasma.

The main point that has emerged from the investigations reported in this paper is that among the different types of infusion material used in the treatment of post-operative shock, no therapy has proved of avail or of lasting benefit without the administration into the blood stream of some efficient colloidal material capable of exerting an oncotic pressure *in vivo*. Later trials showed that the converse is also true, and that in cases where fluid has been lost from the body rather than from the circulating blood stream only, their lack will tend to perpetuate the symptoms of shock. The introduction of concentrated colloids into the blood stream in these cases for the purpose of maintaining the circulation will tend to fail as there will be no adequate fluid reserves upon which they can draw. It is therefore stressed that it has been demonstrated during these trials that optimum results may be expected from a combination of intravenous colloid therapy combined with an adequate hydration of the tissues.

On account of the grave damage that has been shown to follow the introduction into the blood stream of more crystalloid fluid than can be maintained there by the plasma proteins, administration by mouth or by hypodermoclyster is suggested as the route by which it is most easily and simply administered and through which it will be absorbed in proportion to the amount of colloid present. It has been found that no danger exists due to the excessive administration of saline in this way. The blood stream appears to select no more crystalloid fluid than can be held by the oncotic pressure of the plasma proteins. The excess fluid will be left until normal diuresis and other physiological functions will cause it to be required.

To fulfil the rôle of the colloid necessary to maintain the circulation, heterologous albumin, in the form of the pure fraction of the bovine plasma, has been shown adequately to replace the protein that has been lost from the circulation during the induction of surgical shock as well as during the subsequent period (*i.e.*, the period between the commencement of shock and treatment) when the animal is in a state of hypotension.

Its injection into normal animals was found to be attended with no untoward results, neither was it possible to induce anaphylactic or urticarial reactions by repeated injection into dogs and rabbits.

In the animal suffering from a state of shock, the injection of albumin into the blood stream not only raised the blood pressure and maintained the circulation, but was instrumental in drawing fluid back into the blood stream as evinced by the haematocrit readings, measurements of the plasma volume, increase in the pulse volume and pressure and by the alleviation of the cerebral anoxia and stupor, as well as by the apparent absorption of fluid from the upper alimentary tract and from the subcutaneous tissues.

On these grounds it is suggested that the purified albumin fraction of bovine plasma is capable of taking the position of an adequate plasma substitute for the therapy of hypotension and shock in the dog, a place that could not be filled by either gelatine, protein digests, or saline solution. It is not claimed that this product has therapeutic advantages over *desiccated* homologous plasma, where that is available.

The conditions under which therapy has to be instituted in practice are such that the administration of a concentrated product has many advantages over therapy with ordinary whole plasma or isotonic solutions. Unlike homologous plasma, which for the dog is to all intents and purposes not available, pure bovine albumin is readily obtainable and in a form that makes its administration extremely simple.

The results of these investigations indicate that although it is in most cases impossible for an animal to extricate itself unaided from the vicious circle of depleted plasma volume, circulatory insufficiency, and anoxaemic and stagnant anoxia, a small amount of help, on occasion little more than 1 c.c. of concentrated colloid solution per kg. b.w., will suffice to restore the circulation. Thus a small amount of colloid material will turn a failing animal with a low blood pressure, rising haematocrit reading and steadily declining plasma volume, into one which is capable of restoring its natural physiological processes without further help. Although often only small quantities of colloid material were needed, apart from plasma, no blood substitute tested was capable of even partially fulfilling this rôle, with the exception of purified heterologous albumin.

The results of these investigations, in the course of which post-operative shock has been observed and treated in some 50 animals, suggest that a state of shock is by no means a rare complication of veterinary surgical procedure. This state of shock is extremely difficult to avoid or to treat without adequate resuscitatory methods such as correct infusion therapy, especially when the animal is in a state of incipient shock at the time when the operation is begun.

Infusion therapy, apart from the administration of saline solution, has usually been avoided in veterinary practice due to the shortage or non-existence of therapeutically active substances such as plasma, and the difficulties and dangers associated with the application of whole blood therapy.

A substance has been suggested as a result of this work, that has been shown over a large range of cases to be therapeutically active against conditions of even severe shock. The pure albumin fraction of bovine plasma has been shown to be fully as active in isotonic solution as homologous plasma, a substance that is still considered as the optimum treatment for conditions of shock in human surgical cases. Apart from this, the use of concentrated solutions has been shown to possess therapeutic and practical advantages over the infusion of isotonic solutions.

On the basis of the use of these concentrated solutions, a system has been evolved which comprises the intermittent injection of small amounts of concentrated albumin solution intravenously, coupled by crystalloid therapy by other routes. This method is suggested as a way in which the practising veterinary surgeon will be able to control and treat cases of shock within the limited facilities of practice conditions. The system requires no complicated infusion apparatus, nor is it difficult to carry out in the face of the resistance to therapeutic methods commonly exhibited by animal patients.

It is suggested on the basis of the results of these investigations on surgical shock, that the treatment of cases showing symptoms of hypotension and shock, by means of

solutions of the purified albumin fraction of bovine plasma, by the methods suggested in this paper, will effect a reduction in the mortality rate following surgical procedure in the dog.

Summary

It has been determined that purified bovine albumin, free from traces of globulin, is a safe and effective agent to use in the therapy of hypotension and shock in the dog.

The place of crystalloid solutions as an essential adjunct to the therapy of shock with concentrated colloid solution has been determined.

A method has been evolved whereby the therapy of shock with concentrated colloidal solutions becomes a practical possibility under the conditions of veterinary practice.

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GROWTH OF A.I. IN EIRE

In a recent issue of *The Irish Times* a correspondent states that the practice of artificial insemination has been growing in that country for the past few years at a rate that could hardly have been expected by its earliest protagonists. Farmers have quickly realised the advantages it offers them in improving their output of milk or beef.

"In 1946, when A.I. was introduced in a private way in County Cork, a total of 232 cows were inseminated from the one station, but in three years, with an addition to the number of stations, the number of inseminations had grown to 4,557. In 1950, it was 11,299; in 1951, 32,644, and Department of Agriculture officials estimated that by the end of 1952 there would be over 80,000 cows which had received attention.

"The number of main centres, where the buils are kept and the semen produced, has grown to six, and these have 19 sub-stations, which are distribution and storage centres. Next year two other main stations and a further 11 or 12 sub-stations will be added."

* * * * *

BRITISH RIDERS: PREPARATION FOR THE EUROPEAN CHAMPIONSHIP

Selection of the British Three-day Event Team

The British Horse Society announces that the official European International Three-day Event will be held at Badminton on April 22nd to 24th, 1953. The Selection Committee of the Society met recently and the following team was selected to represent Great Britain: Mr. J. R. Hindley, Major A. L. Rook, R.H.G., and Mr. A. E. Hill. These three riders represented Great Britain at Helsinki, where they rode with such success.

Mr. J. R. Hindley (Lancashire) will again ride his own horse Speculation, which was placed 13th in the Olympic Games, and Major A. L. Rook (Nottingham) will ride Starlight, generously loaned by Mrs. Baker. Starlight fell on the second day at Helsinki, when his brilliant performance was almost completed and but for this ill fortune would have earned Major Rook and the British team a medal.

Mr. A. E. Hill (Devonshire) will ride Bambi V. This horse was a reserve at Helsinki, and has been lent by Miss M. Hough. At the games Mr. Hill was placed seventh out of the 60 riders that competed.

The horses and riders are now in training at their homes and will meet at Porlock during March, to complete their training under Captain T. Collings.

This team of three young riders on experienced horses should maintain our prestige against the foreign teams who are expected to make a strong challenge for the 1953 European Championship.

CLINICAL COMMUNICATION

KERATITIS IN PIGS

G. H. T. STOVIN, D.A., M.R.C.S., L.R.C.P.
AND
P. G. I. STOVIN, M.R.C.P.
Hitchin, Herts

This communication, which admittedly is very incomplete, arose as a result of the experience of a near neighbour, who bought pedigree in-pig gilts as foundation stock; keratitis appeared in a proportion of the piglets obtained in the first litters. Facilities were not available for pursuing the matter to a final conclusion. Moreover, as the stock affected has now been eliminated from the herd, the possibility of further investigation has been lost. Nevertheless the data that we have been able to collect, and to piece together, is so suggestive that keratitis in pigs is inherited as a Mendelian recessive that we consider it most desirable to put the facts on record in the hope that it may lead to further evidence being forthcoming. This should either prove the theory conclusively or invalidate it entirely.

When the condition was first recognised various authorities were consulted for help in the matter. It soon became palpably obvious that nothing was known about the disease; as a result several aetiologies, based upon experiences with other animals, were advanced, the favourites being (1) avitaminosis A and (2) some virus or infective agent. These factors may be of importance in the case of other mammals but, in this particular case, can be rejected for several cogent reasons.

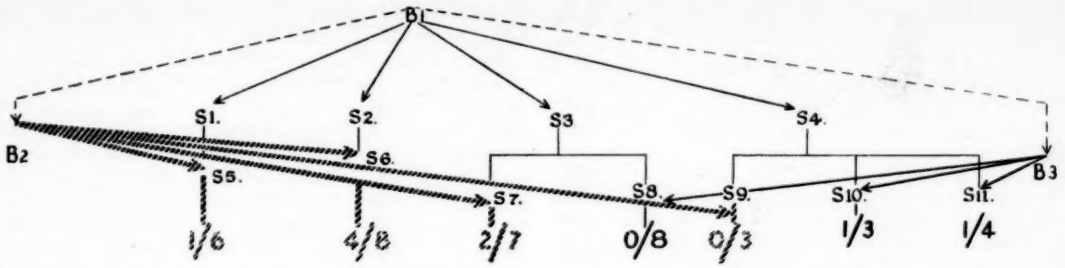
The argument against avitaminosis A is based on the fact that the sows, both throughout their pregnancies and subsequently, were on a normal diet and appeared completely healthy. Had there been any evidence of a deficiency of vitamin A we should have expected to see the mothers, as well as their progeny, affected.

The second aetiological factor seems to us to be unlikely because the sows were healthy and all subsequently bore normal litters. If the sows had had a local infection of their genital tracts we should have expected a higher incidence of affection than was actually found in the litters. No observations on the birth order of those affected were made as this condition was not suspected at the time. The evidence to be presented suggests an inherited factor and not an infection.

In order to present the relevant facts as clearly as possible we have drawn them up diagrammatically below. It is upon these that we are basing our assumption that keratitis in pigs is of genetic origin. Since it is not our wish to disclose anything that might be detrimental to any breeder, the names of breeding stock are being omitted deliberately; instead, we are making use of the symbols B1, B2, etc., for boars, gilts or sows being designated by the letter S.

As stated earlier, the evidence at certain points is incomplete and, in some cases, circumstantial. We have no conclusive proof that B2 and B3 are directly descended from B1, but the data available make such a conclusion more than a reasonable deduction. It is for this reason that we have made use of a dotted line in the diagram. Should this be the case, however, a recessive gene, carried by B1, would stand quite a good chance of being transmitted to B2 and to B3. On similar evidence we think that S1 and S3 have a common ancestry.

The diagram shows that B1, when mated to S1, 2, 3 and 4 produced S5, 6, 7, 8, 9, 10 and 11. S5, 6, 7 and 9 were then mated to B2 whilst the remainder were served by B3.



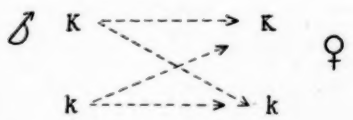
The fractions in diagram above indicate that, *e.g.*, one piglet out of six in the litter of S5 was keratitic. Attention should be called to the litter of S11. This consisted of four piglets. This litter was affected but the owner cannot recall how many piglets were involved. The number affected with keratitis can therefore be written 2±.

If the number of pigs from those litters in which keratitis appeared be added together we find that 10±1 out of 28 piglets farrowed exhibited the keratitic syndrome. Reduced to percentages this reads 35·7±3·6 per cent. out of the five affected litters. Considering the relatively small number of animals concerned this is near enough to 25 per cent. to be extremely suggestive. It is possible that the litters S8 × B3 and S9 × B2 might have produced affected animals if they had been larger; if they are included we have a figure of 10±1 out of 39 or 25·65±2·55 per cent. of the piglets affected. These figures are very suggestive of the condition being due to a recessive gene especially when it is recalled that it is only with an infinite number of matings that an accurate 25 per cent. is obtained.

This ratio of 1:4 derives from a study of the Mendelian theory of inheritance. It might possibly be helpful to show the method by which this figure is reached.

Let us assume for the moment that keratitis is inherited as a Mendelian recessive. It is the accepted practice to denote recessive characters with a small letter, their dominants with the corresponding capital. Therefore the gene for keratitis is labelled "k" whilst its dominant, or masking gene, becomes "K."

In the first case, since both the boar and the gilt must have carried the keratitic factor although not obviously showing it, they must both have been Kk so far as their genetic composition was concerned. The possible results of such a mating can be shown graphically as follows:—



The only possible recombinations of these factors, over a sufficiently large number of offspring, must be

1 KK 1 kK 1 Kk 1 kk

In other words, one out of every four would be kk in composition and would exhibit keratitis. Of the remaining three not one would exhibit keratitis since all would carry the dominant gene K; two out of the three, however, carry the gene for keratitis (k) and can hand this on to 50 per cent. of their progeny. Only one of the four, having the composition KK, will be incapable of passing on the keratitic gene to future generations.

These Kk gilts were later mated to a boar that did not carry the gene for keratitis; their litters resulting from this mating were, without exception, free of keratitis. This again is what would be expected in a case of this kind. Such a boar must have the genetic composition of KK, whereas the gilts were known to be Kk.

Such a mating gives an expectation of

1 KK 1 Kk 1 KK 1 Kk

Since all these piglets carry at least one gene for K not one would be expected to show any sign of keratitis. A further study of this formula shows that 50 per cent. are KK, or boars and sows that are completely free from the keratitic taint. Mated *inter se* they will never produce keratitic pigs. The remaining 50 per cent., however, are Kk in composition. These, neither boars nor gilts, will never themselves develop keratitis but are capable, when mated amongst themselves, of yielding an average of one keratitic piglet in four.

From the economic angle keratitis cannot be classed as a lethal or sub-lethal gene inasmuch as those pigs exhibiting it can be reared to maturity. However, possibly as a result of the blindness, or for other reasons, these pigs are invariably unthrifty, taking considerably longer to reach the killing stage. There is, in addition, some evidence to suggest that some other factors may be involved inasmuch as in some cases the eyes were covered with an opaque film, pus pouring from between the lids, whilst in the very severe cases the eyeball had collapsed, presenting an appearance of almost an empty socket. One piglet is reported to have had only one eye involved.

Not unnaturally the owner's next thought turned to the question of his future breeding policy. From the practical angle everything must depend upon the value placed upon the stock, for the only real, sure and certain way of discarding an unwanted recessive entails the expenditure of much time and thought. In this particular case the owner considered it wiser to jettison the whole stock and make a fresh start. We cannot question the inherent wisdom of this course but we very much regret the total disappearance of valuable experimental material in the process.

The only sound way of breeding out a recessive gene is to mate every boar or sow which it is desired to use for breeding to a known carrier of the gene in question and to raise at least 10 piglets from the resultant mating. If only one offspring from any particular union shows the recessive character the parent under test should be slaughtered, nor should any of his or her progeny be retained for future use. Merely to import and use a boar known to be free from the undesirable character will result in hiding the facts of the case until, at some future date, a mating is made in

which both parents to the union carry the gene in question; in such an eventuality approximately one in four of their progeny can be expected to exhibit it.

The conclusion that we draw from the somewhat scanty evidence outlined above is that keratitis in pigs is probably inherited along Mendelian lines as a fairly simple recessive character, though there may be other genes involved which help to control or modify the degree of keratitis exhibited. In this it differs considerably from what is known about keratitis in humans and in some other animals. We wish, however, to stress that the information at our disposal is quite inadequate for us to be dogmatic on this point. We would suggest rather that it is sufficient to warrant our putting the facts on record in the hope that others may be able to extend these observations at some later date.

ABSTRACTS

Methylamphetamine as a Resuscitant in Anaesthesia*

In experiments carried out in dogs and cats anaesthetised with pentobarbitone sodium, methylamphetamine ("Desoxyn," Abbott) promptly restored the depressed blood pressure and respiration after both picrotoxin and nikethamide had failed. This effect is shown by tracings on moving smoked paper.

In these experiments picrotoxin was used in dosage of 1 mg. per 40 lb. and nikethamide in dosage of 5 c.c. (B.P. sol.) per 40 lb., whilst the dose of methylamphetamine was 10 mg. per 40 lb., all intravenously.

Intravenous injection of a mixture of pentobarbitone sodium and methylamphetamine caused immediate anaesthesia followed by a reliable recovery, whilst five out of 10 cats given the barbiturate alone in the same dosage died from respiratory arrest soon after injection. The use of this mixture is therefore recommended.

[*Abstractor's comment*: In a case of coma resulting from a gross overdose of pethidine in a woman, picrotoxin and amphetamine failed completely to restore respiration, but nikethamide restored consciousness in 30 seconds. It seems that these drugs can help each other "cryptically."

J. E.

Ref.: Romer, C. (1952). *B.M.J.* ii. 1135.]

*Efficacy of Methylamphetamine as an Analeptic in Pentobarbital Sodium Overdosage. Clark, R., & Weiss, K. E. (1952). *J. S. Afr. V.M.A.* **23**. 79-83.

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An Improved Swine Erysipelas Vaccine*

Dissatisfaction with the culture-serum methods of immunisation against swine erysipelas has led European workers to seek alternative methods. A pre-requisite for such investigations was to find a method of testing vaccines in pigs, a problem arising from the fact that pigs are not normally susceptible to *E. rhusiopathiae*. Dinter & Fortner (1944) have elaborated a method by which pigs are infected intradermally with several strains of organisms. A sufficient number react with general or local lesions to make it possible to test vaccines using a reasonable number of experimental pigs. Investigation has proceeded along two lines: (*a*) Producing an attenuated strain of *E. rhusiopathiae* such that it retains its immunising power without disseminating virulent organisms and without requiring immune serum to limit its action; (*b*) Producing an inactivated vaccine. Of vaccines made from avirulent strains, Kondo and Sugimura in Japan cultured the organism in the presence of trypaflavin until its virulence was reduced. Staub in France obtained a strain which had been spontaneously avirulent. (*Abstractor's note*: Staub's strain was made avirulent by incubation, presumably at a temperature above the optimum for growth.) Satisfactory results have apparently been obtained, especially with the latter, but the statistics relating to their use are not very impressive. A formalin inactivated vaccine was prepared by Muronzeff & Matwizenko (1934) from growths upon semi-solid medium and this has been used extensively in Russia with satisfactory results but when tested in pigs by Fortner in Germany it produced little immunity in them. Traub (1947) prepared a vaccine from cultures in fluid media, adsorbed to aluminium hydroxide and inactivated with formalin. A single dose of vaccine has been shown to confer a good immunity on pigs challenged by Fortner and Dinter's method. Field trials reported by Maas, Bergman & Flückiger have given most encouraging results. Other workers have prepared this type of vaccine and are obtaining good results with it. Traub showed that only a minority of strains are capable of yielding good vaccines and also that the active antigens are present in the culture media as well as on the bacteria themselves. The practical difficulty of finding good vaccine-producing strains has been partly met by Dinter and Bakos, who showed that such strains are to be found only among the 10 per cent. or so of strains capable of agglutinating fowl erythrocytes. Similarly Dedié showed that using acid extracts of bacteria, strains could be classified into three groups A, B and N and that good vaccine producing strains belong exclusively to group B. Manninger in Hungary selected rough avirulent variants from good immunising strains. Roughness did not lessen their immunising power and from such rough strains he has produced an adsorbed formalin inactivated vaccine like Traub's. Lyophilisation of vaccines makes them more stable, especially in hot climates.

A. W. G.

*An Improved Swine Erysipelas Vaccine: A Review of Recent Developments by European Investigators. Winter, H. (1952). *Cornell Vet.* **42**. 380-388 (51 refs.).

FOUR FAMOUS AGRICULTURAL SHOWS

The April-June period this year boasts no less than four internationally renowned agricultural shows, the first of which, from May 27th to 30th, at Belfast, Northern Ireland, is the Royal Ulster Agricultural Show.

At Bath, Somerset, from June 3rd to 6th, the Bath and West Agricultural Show will present practically every breed of cattle, horses, sheep and pigs, including the finest pedigree animals. Trade exhibits will include agricultural machinery and implements, while exhibitors in many industries will have their own stands to display the latest electrical goods, clothing, household appliances, gas equipment and hardware. Ring events will form a main feature.

The Three Counties Agricultural Show at Hereford, from June 9th to 11th, will have over 6,000 exhibits including the principal livestock breeds in cattle, sheep, pigs and horses. The programme of events will feature trotting displays, military bands, championship horse jumping, dog shows, a flower show, demonstrations by leading craftsmen of rural industries, a procession of local mayors and corporations in full medieval regalia.

For Coronation Year the Royal Highland and Agricultural Society of Scotland are planning one of the largest and most comprehensive shows they have ever staged. It will take place at Alloa, Scotland, from June 23rd to 26th. Among a long list of attractions will be displays by pipe bands, horse jumping competitions, sheep dog demonstrations, livestock judging of cattle, horses, sheep, goats, pigs and poultry. Special stands will be devoted to the latest implements and machinery, agricultural education and research, forestry exhibition, handcrafts and a flower show.

REVIEWS

[Animals and Man. By G. S. Cansdale. London: Hutchinson. Price 15s. net.]

Mr. George Cansdale has written a book which should have a wide popular appeal. The author, formerly a Forest Officer in West Africa and then Superintendent of the London Zoological Gardens, is a well-known figure in the television programmes and if most of his vast audience in that field can be persuaded to read his book, nothing but good can result.

The general public is almost totally ignorant of matters appertaining to the conservation of wild life and of the impact of "civilisation" on animal communities. Mr. Cansdale's book gives a most readable account of these and kindred subjects and of the problems which are connected with them. A fully informed public can bring pressure to bear on governments to give protection to animals where it is needed and to curb the insensate commercial greed which led, for example, to the near extermination of the fur seals and many another creature.

The professional zoologist will not find unfamiliar the arguments and examples put forward in the book but many are well worth re-reading and thinking about; while here and there appears some new and up-to-date information, such as the section on the European bison. Nor will he find such a detailed and documented study as was given by James Ritchie, some 30 years ago, to similar problems in Scotland—a study which the reviewer was surprised to find unmentioned either in text or in bibliography. But it is clearly no part of Mr. Cansdale's plan to preach to the converted. His book is designed to reach a wide public and rightly so.

The book is well made and clearly printed. The illustrations are many and varied if of somewhat uneven quality but the reviewer has a personal dislike of plates which extend to the edge of the page without even the smallest margin. (Where, by the way, is the page of illustrations said to face pages 44 and 45? It is not in the copy before us.)

But these are trifling criticisms and it is to be hoped that the book will achieve a wide circulation. If it does, it cannot fail to stimulate interest in the relations between man and animals to the ultimate good of both parties.

* * * * *

[Herbal Handbook for Farm and Stable. By Juliette de Bairacli Levy. Pp. 268. London: Faber & Faber, Ltd. 1952. Price 18s.]

When one has a mission in life the small truth may seem the whole truth. The author pursues her gospel of back to nature so intensely that facts lose significance unless they accord with the creed; they are to be ignored or scorned. "Science is proving the ruination of good farming."

Two chapters are devoted to descriptions of herbs and their preparation for medicinal use. The remainder of the book deals with some ailments of farm animals and their herbal treatment. "The passing of the 1949 Veterinary Act might well have ensured the end of all herbal medicine in England, both gipsy and peasant. It was necessary to write this book to help keep alive the ancient and valuable art of the herbalist in veterinary medicine." The purpose would have been better served if the author had refrained from caustic comment on modern knowledge and practice, and if many of the assertions were presented as personal belief instead of as indisputable truth.

The book is likely to provoke more irritation than thought among veterinary readers.

REPORT

[Colony of Trinidad and Tobago. Department of Agriculture: Administrative Report, 1950.]

Animal Health.—This subject is dealt with as part of the general report. The Deputy Director (Animal Husbandry) is Captain H. V. M. Metivier, O.B.E., B.Sc., M.R.C.V.S.

Veterinary Diagnostic Laboratory.—This work fell under three heads: milk testing, pathological investigation, and equine pregnancy diagnosis. Surveys were also undertaken to determine the incidence of brucellosis and tick-borne diseases. Examinations were made also in connection with Johne's disease, tuberculosis, trichomoniasis and fowl cholera.

An outbreak of foot-and-mouth disease in Venezuela required the imposition of restrictions on the importation of cloven-hoofed animals into the colony.

Tuberculin testing was continued, but instead of using Canadian bovine tuberculin, a change was instituted to a product made by the U.S.A. Bureau of Animal Industry. Since this change there has been a higher percentage of reactors to the test. Among 1,805 privately owned dairy cows tested 3·3 per cent. reacted. The incidence of tuberculosis in water buffaloes reached the high figure of 25·3 per cent. in 134 tested.

Rabies.—Following an outbreak of rabies in Puerto Rico, a Caribbean Rabies Conference was held in Jamaica and it was decided that vaccination should be put into force wherever the disease was endemic; elsewhere strict quarantine restrictions should be imposed, with a minimum period of four months' segregation.

There were 18 outbreaks of swine fever, all of which were brought under control by the use of crystal violet vaccine in areas surrounding the centres of infection. Anaplasmosis and piroplasmosis seem to cause little trouble. Only one case each was detected during the year. Calf pneumonias and scours on the Trinidad stock farm have been successfully controlled by a change to an open-air system of management. The calves suffered no ill-effects from exposure. No deaths occurred in 1950 against a mortality ranging from 9 to 17 per cent. in previous years. Trichomoniasis was recorded in the colony for the first time, but the incidence is believed to be slight. In addition, mention is made of the occurrence of mastitis, strangles, ulcerative lymphangitis, fowl typhoid, infectious laryngo-tracheitis and fowl cholera; also of distemper and leptospirosis in dogs.

Vitamin B (riboflavin) deficiency was encountered among chicks and was cured by the addition of 1 per cent. milk butter and 7 per cent. yeast to the ration.

External parasites in livestock were successfully dealt with by a spray containing a mixture of BHC and DDT. BHC alone proved less effective. Benzyl benzoate was successfully used in the treatment of sarcoptic mange. Internal parasites in calves and goats responded successfully to phenothiazine given in increased doses. (Dose not stated.)

The dairy herd on the Trinidad stock farm was milked three times a day and the feeding of concentrates stabilised at 4 lb. per gallon of milk throughout the year. Milk yield over a period of 10 years was found to be higher in the dry season. The average yield of milk per cow increased by 80 gallons between 1948-49 and in 1950 by a further 113 gallons as a result of improved management and feeding. Zebu heifers are not now bred until they are two and a half years of age and dehorning is practised as widely as possible.

W. W. H.

XVth INTERNATIONAL VETERINARY CONGRESS, STOCKHOLM

In our issue of last week we published the outline of the programme of the scientific proceedings of the above Congress, to be held in Sweden from August 9th to 15th, 1953, together with certain particulars relating to Congress fees, travel arrangements and enrolment. This material was inserted as soon as it was received from Stockholm by the Secretary of the Permanent United Kingdom National Committee, who, on the Thursday—the day after we went to press—was the recipient of further papers, conveying the following supplementary information.

Forms of Application for Membership, Accommodation, Etc.

Forms of application for membership of the Congress as ordinary or extraordinary members (see page 62 of our issue of last week), and order forms for accommodation, may be obtained either from Mr. W. G. R. Oates, the Secretary of the Permanent U.K. National Committee, at 10, Red Lion Square, London, W.C.1, or from the Secretary of the Congress Organising Committee, c/o A. Isaksson, State Veterinary Medical Institute, Stockholm 50, Sweden. The intimation adds: "The forms should be properly filled in according to the comments on the next page, and returned in plenty of time for us to receive them *before April 1st, 1953.*" These comments (on the form of application) include the following:—

"Only the name of *one* person should be given in each form.

"Type of membership should be given by a cross in the square intended for the purpose. Non-official delegates of veterinary faculties, research institutes, veterinary associations, etc., should give name of organisation represented. Family members accompanying either ordinary members or veterinary students should give the name of the person whom they accompany.

"Date of paying the Congress fee and Banquet fee as well as name and address of bank through which payment is made should be given. Payment can be made by cheque sent directly to the Congress or by remittance to Inteckningsbanken AB, Stockholm 16, for account of the Congress. Way of payment is marked by a cross in square intended for the purpose.

"The cost of the Proceedings of the Congress, Part I and II (sectional reports, and plenary lectures and contributions to the discussions, respectively) are included in the Congress fee of ordinary members.

"Costs for excursions and tours in Stockholm and its surroundings, tours in connection with visits to veterinary and other institutions, etc., as well as admission fees for the night concert in the National Museum and for the theatre performance at Drottningholm (two appreciated tourist attractions) are paid in the Congress Bureau.

"Part I of the Proceedings of the Congress is estimated to be ready printed for distribution by June, 1953, at the latest.

"*Shortage of rooms is great in Stockholm, especially during summer. (Our italics.)* The Organising Committee will do their utmost, however, to provide the accommodation desired. The prices are approximately the following. First-class hotels: single rooms 12 to 20 Sw. kronor,* double rooms (twin beds) 20 to 36 Sw. kronor. Average hotels 8 to 12 and 16 to 24 Sw. kronor respectively. Private rooms 7 to 8 and 12 to 16 Sw. kronor respectively. Lodging with six to eight beds in each room: 3.50 Sw. kronor a bed. For hotel rooms and private rooms additional cost for service, etc., will amount to about 20 to 30 per cent. Payment for the room is to be made at place of staying. Confirmation of order for room will be sent by July, 1953, at the latest.'

In the course of a communication covering a supply of the forms of application, the Chairman and the Secretary of the Organising Committee of the Congress say:—

"Colleagues who are unable to attend the Congress, and veterinary faculties, veterinary colleges, libraries, veterinary authorities, veterinary organisations, etc., which will not be represented at the Congress, may, as associate members, receive Parts I and II of the Proceedings of the Congress at a price not yet fixed. Invitations to apply for associate membership will be sent later. Part I of the Proceedings will contain the sectional reports, and will be published before the beginning of the Congress. Part II will contain the plenary lectures and the contributions to the discussions after the sectional reports. This part of the proceedings will be published as soon as possible after the Congress.

"At the Congress 10 plenary lectures will be delivered in the forenoons by specially invited researchers. In the afternoons about 300 reports, many of which will be illustrated by films, will be read by colleagues who have sent in papers. These reports, distributed into nine sections, will be followed by general discussions. Moreover, films of veterinary interest will be shown. In this way all branches of veterinary medicine and veterinary food hygiene will be dealt with.

"In addition to the scientific proceedings, visits will be arranged to the Royal Veterinary College, the State Veterinary Medical Institute, the State Bacteriological Laboratory, the National Institute of Public Health, the Royal Agricultural College, the National Animal Experiment Station, the Animal Breeding Institute, a slaughterhouse, a dairy, an insemination centre, and representative farms.

"Sunday, August 9th, is reserved for registration in the Congress Bureau and a reception in the Town Hall of Stockholm. On Monday, August 10th, the official opening of the Congress will take place in the Concert Hall of Stockholm. On the same day the proper work of the Congress will begin. On Tuesday, August 11th, the Congress banquet and dance will be held. On Wednesday, August 12th, a night concert will be given in the National Museum. On Thursday and Friday, August 13th and 14th, visits are planned to the Palace Theatre of Drottningholm (from the 18th century), where excellent entertainment will be offered. On Saturday, August 15th, the official closing meeting will be held.

"Daily sightseeing tours by bus and boat in Stockholm and its surroundings are planned for the week of the Congress. A special ladies' programme, comprising a luncheon, at which the ladies are guests of the Congress, and visits to places, institutions, etc., of cultural, social, and historic interest, is also planned.

"Before and after the Congress, tours will be arranged by the official travel bureau of the Congress according to individual wishes. After the Congress, conducted tours are planned to Malmö through South Sweden and to Gothenburg through West Sweden. Prospectuses of these tours will be sent by request in the application form.

"*The Organising Committee hope that the Congress in Stockholm will be well attended, and extend a most hearty welcome to all the visitors.*"

*As we stated last week, the present rate of exchange, which is unlikely to alter very much, is 15¼ Sw. kronor to the £.

January Meetings of Council, B.V.A.

Summary of Proceedings

A large attendance in keeping with the importance of much of the business transacted was a satisfactory feature of the special and quarterly meetings of the Council of the British Veterinary Association, held at the Connaught Rooms, Kingsway, W.C.2, on Friday, January 16th, 1953, under the chairmanship of the President, Mr. A. M. Graham, M.R.C.V.S.

Special Meeting

The special meeting, which began at 9.30, had a twofold purpose. The first, as recorded in our issue of January 24th, was to receive the report of the Premises Sub-committee on the result of its search for new premises as headquarters for the Association. As was also reported then, the measures already adopted were endorsed and the recommendations of the Sub-committee as to those still to be taken, were approved, with appreciative unanimity, in relation to the acquisition of the lease of No. 7, Mansfield Street, a gracious Robert Adam house in an imposing terrace situated between Portland Place and Harley Street and thus well within the dignified professional consultant area of London. The President, having outlined the features of the property, also the financial pros and cons, Council signified assent with an enthusiasm deriving alike from confidence in the Sub-committee and relief that so satisfactory a solution had been reached, with celerity, of the difficult problem posed by our inability to renew the lease of 36, Gordon Square in consequence of the expansionist requirements of our new ground landlords, the University of London.

The second item of business before the special meeting was consideration of the recommendations of the Standing Joint Committee of the R.C.V.S. and the B.V.A. covering the report of the Champion Committee on Licences under Section 7 of the Veterinary Surgeons Act, 1948. Council went into Committee to consider this matter, and on the resumption of open meeting, recommended acceptance of this interim report as amended.

Quarterly Meeting

After an interval for refreshments the members proceeded to consider the business before the quarterly meeting, this being happily introduced by the President's heartily applauded reference to the award of the O.B.E. in the list of New Year Honours to his ministerial colleague, Mr. E. R. Callender. A sad theme followed, however, in the payment of many moving tributes to those B.V.A. members of great note whose names constituted perhaps the shortest, but certainly one of the most grievous, obituary lists in our history: Dr. J. T. Edwards, an outstanding veterinary scientist and teacher, an ardent and practical supporter of the Association and this journal; Mr. S. J. Motton, a practitioner of wide repute and a staunch worker for the Association and its Western Counties Division, and Mr. R. Glave Saunders, seven times Mayor of Exeter and another fine practitioner who included amongst his interests a life-long local campaign against the infliction of cruelty to animals which, allied to his own high standing in the community, added much to the prestige of the profession in the West Country. A decline in membership of 70 odd to 3,807, due to resignations and a failure to meet subscription dues, was a cause of concern to the Council, the President urging action by Divisional and individual approach wherever such was possible, to remedy a trend which could not be allowed to continue.

Committee Business

The halcyon days of Harrogate and the Christmas week alike were succeeded by a brisk bout of committee business, from the records of which only a few major selections can be made prior to their appearance in full in the next issue of the Supplement. The report of the Home Appointments Committee shows that it is hoped to make a joint approach with the R.C.V.S. to the National Coal Board in an endeavour to ensure that when the Board seeks veterinary services in any part of the coal industry, an ethical approach to the profession should be made. Such diverse matters as the B.V.A.-M.M.B. pilot scheme for artificial insemination and the salaries of teachers in veterinary schools also are engaging the attention of the Committee. Much of the recent work of the Parliamentary and Public Relations Committee has centred upon humanitarian activities, support "in principle" being given to the provisions of the proposed R.S.P.C.A. Animals (Cruel Poisons) Bill, and to the early use of the Association's journal to check abuses arising from failure to conform with the terms of the Docking and Nicking of Horses Act. Clearly it is proving difficult to dress in a manner presentable to Parliament the wee child so hopefully and affectionately sent on its way after the Cardiff Congress of 1950, charged with promoting amendments of the Animals (Anaesthetic) Act, 1919. By contrast, the control of manufacture of veterinary therapeutic substances, in so far as the Diseases of Animals (Therapeutic Substances) Order gives advance notice of the same, is now moving towards its journey's end. Measures to increase the publicity value of our annual Congress are under consideration, at the instance of our Press Officer, as also is the impact of public relations work upon the interpretation of the profession's ethical code. The report of the Organising Committee reflected activities relating to the report of the Champion Committee; also a great deal of work in settling local arrangements and difficulties associated with the functioning of old and the establishment of new small-animal clinics.

Over the years, the Veterinary State Medicine and the Technical Development Committees, and their reports, have developed imposing proportions. The former, at the moment, is our liaison with Government in such varied concerns as slaughterhouse arrangements for dealing with casualty animals; slaughterhouses as a source of material for pathological examination; slaughter of horses; vaccination against swine fever; provision of anthrax vaccine; possible spread of infection by imported feeding-stuffs; use of antibiotics in feeding-stuffs together with meat inspection and the marketing of fat stock. The Technical Development Committee is concerned not only with the publication of handbooks, etc., making available to members summaries of recent work on the diseases of livestock, and with the provision of such opportunities for the exchange of knowledge and views as the recent successful grassland conference; it also conducts investigations into such matters as to what should be the method of choice for castrating calves and castrating and docking lambs. This Committee, too, has its contacts with the Ministry: currently it is enquiring as to the duration of immunity following calfhood vaccination with S.19. That this Committee, however, is not altogether content with the present definition (or understanding) of its scope and functions, *vis-à-vis* small-animal practice, was evidenced by approach to Council for guidance, and after discussion that body expressed itself in favour of enlarging the Committee to include a small-animal section, in preference to the setting up of two separate committees to deal with large and small animals respectively. Both this and the Editorial Committees have much in mind the necessity for the formulation and adoption of measures to make developments in research more fully and more speedily available to the profession through the medium of this journal; also to secure speedy reports of current events of veterinary interest including conferences.

The Overseas Services Committee is performing very extensive and, as we know, highly valued labours in protecting and advancing the interests of members in many parts of the world, while the energy expended by the General Purposes and Finance Committee, through its Premises Sub-committee, in acquiring prospective new premises, appears, for once, to have left this dynamic agent of Association activity content with a modest residuum of work—at least on paper.

The Steele-Bodger Memorial Fund for the founding of a travelling scholarship has achieved the success anticipated for a testimonial of such deep personal appeal and potential value to the profession, while financial support has also been accorded by the Association to the King George VIth Memorial Fund, the Animal Health Trust and the British Horse Society.

QUESTIONS IN PARLIAMENT

Abattoirs

Mr. Deedes (January 21st) asked the Minister of Food what action he is proposing to take in order to implement his policy in respect of abattoirs.

Major Lloyd George: An Inter-Departmental Committee is being appointed to prepare a plan for England and Wales for the siting of slaughterhouses under the policy explained in my reply to my hon. Friend the Member for Hexham (Mr. Speir) on November 5th, 1952.

I hope shortly to be able to announce the constitution of the Committee.

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Fowl Pest

Mr. Peter Freeman (January 22nd) asked the Minister of Agriculture how many cases of fowl pest were recorded in 1952; how many hens were involved; in how many cases the battery system was in vogue; and in how many the hens had free run.

Sir T. Dugdale: There were 498 outbreaks of fowl pest in 1952 and some 275,000 fowls were involved. I regret that I am unable to say how many of the birds were hens or how many were kept on the battery or free range system, but there is no evidence that outbreaks of fowl pest are more likely to occur where hens are kept on one system rather than on the other.

Mr. Peter Freeman (January 22nd) asked the Minister of Agriculture, in view of the large number of hens found diseased by fowl pest, what evidence exists that eggs laid prior to the discovery of the disease or subsequently are unfit for human consumption; and what steps are taken to prevent them being sold in the ordinary market as fresh eggs or used for dried-egg preparation.

Sir T. Dugdale: I am advised that there is no evidence that the eggs of hens involved in outbreaks of fowl pest are unfit for human consumption, and no steps are taken to prevent their sale for this purpose.

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Notifiable Animal Diseases (Slaughtering)

Mr. Peter Freeman (January 22nd) asked the Minister of Agriculture the number of cases and the number of animals and birds involved where compensation was payable for any form of notifiable disease during 1952; and what was the total compensation paid in each variety.

Sir T. Dugdale: The following is the information:—

Notifiable Animal Diseases—Great Britain, 1952

Notifiable Diseases	Cases	Animals or Birds Slaughtered	Total Compensation
Foot-and-mouth disease ...	495	75,511	2,417.212
Fowl Pest	498	299,969	285,653
Swine Fever	891	595*	2,151
Tuberculosis	3,179	3,179	43,044

* Slaughtered for diagnostic purposes only.

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Anthrax

Lieut.-Colonel Bromley-Davenport (January 22nd) asked the Minister of Agriculture how many cases have been reported during each of the past two years of cattle infected by anthrax; to what extent such cases are considered to have been caused by imported meat and bone meal; and what steps are being taken to prevent the further importation of any such fertiliser which may be a source of infection.

Sir T. Dugdale: There were 382 and 730 cases involving cattle in 1951 and 1952, respectively. Anthrax in this country is mainly caused by the use in feeding-stuffs and fertilisers of contaminated imported materials. It is seldom practicable to identify the particular ingredients responsible, but there is little doubt that imported animal products, such as bone meal, are a fairly common source of infection. As a first step my Department is now discussing with the appropriate trade associations further measures to reduce the risk from this source. Until these discussions have been concluded, I should be reluctant to take any action which might substantially reduce the quantities of feeding-stuffs and fertilisers available in this country.

Lieut.-Colonel Bromley-Davenport (January 22nd) asked the Minister of Agriculture to what extent vaccine against anthrax, developed by his Department's research laboratory at Weybridge, is now being used in this country; and with what results.

Sir T. Dugdale: An effective vaccine against anthrax has been used for a number of years under the supervision of my veterinary staff, but only for animals known to be exposed to a particular risk of infection. During 1952, vaccine sufficient to vaccinate about 13,000 cattle or twice as many pigs was issued. The vaccine has now been made available generally to veterinary surgeons for use at their discretion, but it is too early to say to what extent its use will increase under the new arrangements. Generally, the vaccine has given good results.

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Livestock (Antibiotics)

Sir I. Fraser (January 22nd) asked the Minister of Health if he will now amend the Penicillin Act, 1947, so as to provide that antibiotics may be used for the treatment and feeding of livestock, especially pigs.

Miss Hornsby-Smith: The Government propose to introduce a Bill on this subject shortly.

Sir I. Fraser: Is it intended to get the Measure passed by the end of July?

Miss Hornsby-Smith: There is no guarantee of that.

Mr. Anthony Greenwood: In the meantime, would the hon. Lady try to arrange for information about the value of this treatment to be made readily available by the Ministry of Agriculture to her Department?

Miss Hornsby-Smith: I will pass that question on to my right hon. Friend the Minister of Agriculture.

Mr. Anthony Greenwood asked the Minister of Agriculture whether he will arrange for guidance to be made readily available to farmers by his Department on the use of antibiotics as a dietary supplement in the feeding of pigs.

Sir T. Dugdale: Yes: as soon as this practice has been legalised.

NOTES AND NEWS

Diary of Events

Feb. 3rd.—Meeting of the Southern Counties Division, B.V.A., at Southampton (Polygon Hotel), 6.30 p.m.

Feb. 5th.—Meeting of the Central Division, B.V.A., at the Royal Veterinary College, N.W.1, 6 p.m.

Feb. 6th.—Meeting of the Sussex Division, B.V.A., at Brighton ("The Old Ship Hotel"), 2.45 p.m.

Feb. 6th.—Meeting of the Society for the Study of Animal Breeding, at the Wellcome Research Institute, London, N.W.1, 2.15 p.m.

Feb. 7th.—North of Scotland Division, B.V.A.: Winter Meeting and Annual Dinner at Aberdeen (Marcliffe Hotel, Queen's Terrace), 3 p.m.

Feb. 11th.—Meeting of the Editorial Executive, B.V.A., 2.30 p.m.

Feb. 12th.—Annual Ball of Glasgow University Veterinary Medical Association, to be held at the Rhul, Sauchiehall Street, Glasgow, from 8 p.m. to 2 a.m.

Feb. 12th.—Royal (Dick) School of Veterinary Studies Annual Ball, at the Assembly Rooms, George Street, Edinburgh.

Feb. 13th.—Joint meeting of the Lancashire Division, B.V.A., and the North West Branch of the Society of Medical Officers of Health, at Manchester Town Hall Extension, 3 p.m.

Feb. 18th.—Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at 1, Wimpole Street, W.1, 5 p.m.

Feb. 19th.—Meeting of the Herts & Beds Division, B.V.A., at 70, Holywell Hill, St. Albans, 2.30 p.m.

Feb. 27th.—91st Annual General Meeting of the Lancashire Division, B.V.A., in the Veterinary Hospital, Pembroke Gardens, Liverpool, 2.30 p.m.

Feb. 27th.—Annual Ball of the Veterinary Society, Faculty of Veterinary Science, The University, Liverpool, to be held in the Students' Union from 8.0 p.m. to 2.0 a.m.

March 4th.—Meeting of the Association of Veterinary Teachers and Research Workers (Scottish Regional Group) in the Royal (Dick) School of Veterinary Studies, Edinburgh, 2.30 p.m.

March 19th.—Annual Dinner and Dance of the East Midlands Division, B.V.A., at Nottingham (The George Hotel). Reception 7 p.m.

Council and Committee Meetings of the B.V.A.

The following arrangements for the Council and Committee meetings of the B.V.A. in April and July, 1953, have been made by Council B.V.A.:—

April 20th, 21st and 22nd, in Edinburgh: *Members are requested to note change of dates from those announced earlier, viz., April 29th, 30th and May 1st.*

July 29th, 30th and 31st in London.

R.C.V.S. Council and Committee Meetings

The next series of meetings will be held in London on February 4th, 5th and 6th (Council).

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PERSONAL

Birth.—Sachs.—On January 18th, 1953, to Sheila, wife of M. Sachs, M.R.C.V.S., of 647, Scott Hall Road, Leeds, 7, a son.

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Marriages.—Graves—Meade.—On January 24th, 1953, at St. Andrew's Church, Wiveliscombe, John Andrew Graves, B.Sc., M.R.C.V.S., D.V.S.M., only son of Mr. and Mrs. A. G. Graves, of Surbiton, Surrey, to Margaret Joan Meade, widow of Flying Officer Victor F. D. Meade and only daughter of Mr. and Mrs. F. J. Morle, of Wiveliscombe, Somerset.

Wiggins—Ovenden.—On December 27th, 1952, at St. Leonard's Church, Streatham, London, Geoffrey Stuart Wiggins, M.R.C.V.S., son of Mr. and Mrs. A. H. Wiggins, of West Norwood, London, to Maureen Mary, second daughter of Mr. and Mrs. Ovenden, of Streatham Hill, London.

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R.C.V.S. OBITUARY

Boyle, Benjamin Patrick, M.R.C.V.S., Captain late R.A.V.C., of Northfield, Belper, Derby. Graduated London, May 15th, 1890. Died January 16th, 1953.

Leaming, Augustine, D.S.O., M.R.C.V.S., Lieut.-Colonel R.A.V.C. (retd.). Graduated London, May 21st, 1901. Died at Oakley Court, Windsor, Berks, on January 18th, 1953.

Moore, Roger de Coverley, M.R.C.V.S., Captain R.A.V.C. (S.R.) (retd.), Nottingham Road, Alfreton, Derby. Graduated London, December 22nd, 1910. Died January 16th, 1953; aged 67 years.

Shepherd, Joseph Hutchinson, F.R.C.V.S., c/o Midland Bank, 148, High Street, Guildford. Graduated London, May 11th, 1893; Fellowship May 24th, 1901. Died January 21st, 1953; aged 81 years.

Mr. B. P. Boyle, M.R.C.V.S.

Mr. Benjamin Patrick Boyle, of Northfield, Matlock Road, Belper, whose death we record above, with much regret, was a well-known local veterinary surgeon for more than 50 years; he died at his home after a short illness.

Mr. Boyle was a senior member of the Beaureper Lodge of Freemasons, of which he was formerly the Worshipful Master, and he was also a member of Derbyshire Branch of the N.F.U.

During the 1914-18 war he served as a captain in the Royal Army Veterinary Corps.

Deep sympathy is extended to the widow and three daughters who are bereaved.

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REMOVAL OF FEEDING-STUFFS CONTROLS

In a White Paper issued last week the Government announced their decision to remove controls on the prices and supplies of all cereals and feeding-stuffs at the next harvest, and to return imports to private trade. In so far as the imports of feeding-stuffs are concerned, it is stated that the rate of imports authorised after decontrol will in any case be sufficient to maintain the present supply. The Government also expect that farmers will increase home production of animal feeding-stuffs, thus providing a net addition to total supplies. The current livestock expansion programme which was laid down in the White Paper issued after the 1952 annual review assumes that the addition to the livestock population will be supported entirely from additional home-produced feeding-stuffs.

"In the early stages of decontrol the expansion of home production of feeding-stuffs may not keep exactly in step with the expansion of the livestock population. For this reason, during the first year after the end of feeding-stuffs rationing, the Government will be prepared, in the event of any critical shortage of supplies leading to a serious upward tendency of prices, to consider authorising such additional imports as may be needed to maintain a livestock population which is expanding in conformity with the White Paper programme.

"There will be further discussions of the detailed arrangements with all the interests concerned. Meanwhile the feeding-stuffs rationing scheme will continue in full force."

N.F.U. Reaction

In a statement, the National Farmers' Union said that the Government's announcement was a major development of policy which would have widespread repercussions in every sector of agriculture. Although the N.F.U. entered strong reservations on the effect of the Government's decision, it was worthy of note that if the farmers had not substantially increased home production of feeding-stuffs in the past 13 years, by the adoption of new techniques and by increased efficiency, the Government could scarcely have contemplated such a development.

"The Government's decision means that from next autumn there will be freedom for each farmer to choose the particular type of feeding-stuff which he requires. This freedom of purchase will, however, inevitably be limited by the availability of each type of feeding-stuff and by the farmer's ability to pay the market price. The N.F.U.'s concern in assessing the results of decontrol lies mainly in the probable effects upon price and supply.

"When the subsidy is removed the cost of production of livestock commodities will rise. A consequent increase in the price of these livestock commodities cannot be avoided at the forthcoming price review: at the last price review one important measure by which the Government agreed to stabilise the costs of production was by the maintenance of the feeding-stuffs subsidy, thereby avoiding corresponding increases in the prices of end products.

"This policy, so far as feeding-stuffs are concerned, has now been completely reversed. A substantial burden of extra working capital will be laid upon the many thousands of producers, mostly small, who are mainly dependent on purchased feeding-stuffs."

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ROCKEFELLER FOUNDATION GRANTS

Among the grants for research equipment, assistance or visits recently announced by the Rockefeller Foundation are the following:—

Professor William I. B. Beveridge, University of Cambridge; $1,650 towards his travel expenses when visiting the United States in the spring of 1953, a part of which time he will be visiting professor in the Department of Bacteriology at Ohio State University. Professor Beveridge is head of the Department of Animal Pathology in the University.

University of Cambridge; $2,200 for the purchase of equipment to be used in research in animal behaviour under the direction of Dr. William H. Thorpe, of the Department of Zoology.

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DISCONTINUANCE OF POST OF SUPERINTENDENT AT THE LONDON ZOO

On Wednesday of last week it was announced that the post of superintendent of the London Zoo is being ended by the Zoological Society for reasons of economy. In a statement, the Council of the Society said: "The Council of the Zoological Society at its meeting to-day decided on certain staff reorganisations with a view to greater economy and efficiency. As the result of this, and among the more fundamental changes, the post of superintendent of the Regent's Park menagerie is being vacated and its duties reallocated among the existing staff."

The post of superintendent at the London Zoo has been held by Mr. George Cansdale since 1948. Mr. Cansdale, who is 43, served in the Gold Coast with the Colonial Forest Service from 1934 until 1948. He has written books and articles on natural history and has made many sound and television broadcasts.

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DUAL-PURPOSE CATTLE IN FRANCE

The value of dual-purpose cattle in France was emphasised by Professor P. Charlet (Institut National Agronomique, Paris) when he addressed the British Cattle Breeders' Club at Cambridge during their winter course (states the *Meat Trades Journal*). More than 45 per cent. of France's meat came from herds also producing milk, butter, or cheese, he said.

In France a steer at two years was considered too young for good quality meat, although it was widely used in industrial areas, where meat quality was considered second to carcase quality. The preference was for meat of from three to five years old, when it was of really fine fibre quality and of good marbling. The Normandy breed—the only dual-purpose breed in which many steers were fattened—produced high quality meat, and its percentage of first joints was just a little lower than in beef breeds such as Charolais and Limousin.

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

ANTHRAX :

Berks.—Red Cow Allotments, Caversham, Reading (Jan. 19th).

Cambs.—The Acacias, Sutton Road, Haddenham, Ely (Jan. 19th).

Ches.—Back Lane Farm, Sutton, Macclesfield (Jan. 21st).

Cornwall.—West Towan Farm, St. Austell (Jan. 19th).

Derbys.—Longroods Farm, Ashford Lane, Ashford-in-the-water, Bakewell (Jan. 19th); Pear Tree Farm, Little Langstone, Bakewell (Jan. 20th).

Essex.—Brookhouse Farm, Stapleford Tawney, Romford; The Woodyard, Highwood, Ingatestone (Jan. 19th); Badnocks Farm, Southminster (Jan. 22nd).

Glos.—Tan House Farm, Frampton-on-Severn (Jan. 16th); Church Farm, Church Street, Littledean (Jan. 21st); Woolstrop Farm, Quedgeley (Jan. 22nd).

Hants.—Trenarren, Monkwood, Ropley, Alresford (Jan. 19th); Elton Cottage, Hook, Basingstoke (Jan. 20th).

Lancs.—Pepper Hill Farm, Salwick, Preston (Jan. 16th); Far Sunny Bank, Bentham, Lancaster (Jan. 19th).

Norfolk.—Northill Farm, Letton, Thetford (Jan. 16th).

Notts.—Chapel Farm, Normanton, Southwell (Jan. 20th).

Staffs.—Aston Hill Farm, Aston, Doxey (Jan. 19th).

Suffolk.—Red House Farm, Dunnington, Woodbridge (Jan. 16th); Hill Farm, Winston, Stowmarket (Jan. 21st).

Sussex.—Holm Farm, Holm Hurst Estate, Faygate, Horsham (Jan. 20th).

Warwicks.—Fosse House Farm, Ettington, Stratford-on-Avon (Jan. 17th).

Westmorland.—Dale End, Grasmere, Ambleside (Jan. 16th).

Wilts.—Frogwell Farm, Chippenham; Brickworth Park, Whiteparish, Salisbury (Jan. 19th).

FOOT-AND-MOUTH DISEASE :

Durham.—Westburn Farm, Crawcrook, Ryton (Jan. 22nd).

FOWL PEST :

Berks.—Pine Farm, Wokingham (Jan. 22nd).

Cambs.—7, Hundred Road, March (Jan. 21st).

Essex.—Grays Cottage, Chignel, Chelmsford (Jan. 19th).

Lancs.—Hillcrest Avenue, Ingol, Preston; Clevely Bank, Forton, Preston; Ingolwood, Tag Lane, Ingol, Preston; Brunstow Farm, Ellel, Lancaster (Jan. 16th); 113, Tood Lane, Lostock, Bolton; The Bungalow, Oaktree Avenue, Ingol, Preston; Corbes Mill, Dolphinholme, Lancaster (Jan. 17th); Rose Cottage, Ingol, Preston (Jan. 19th).

Lincs.—Redcot, Westcliffe Road, Ruskington, Sleaford (Jan. 17th).

London.—39, Drakefield Road, Tooting, London, S.W.17 (Jan. 16th).

Norfolk.—The Homestead, Tanns Lane, North Lopham, Diss (Jan. 17th); North Road, Great Ormesby, Yarmouth (Jan. 21st).

Somerset.—Withy Farm and Withy Brow Farm, East Huntspill, Highbridge (Jan. 21st).

Surrey.—Row Gardens, Horsham Road, Cranleigh (Jan. 20th).

Sussex.—524, Falmer Road, Woodingdean, Brighton (Jan. 17th).

Wilts.—Nythe Villa, Wanborough, Swindon (Jan. 19th).

Yorks.—Howe Field, Baldersby, Thirsk (Jan. 19th); Lane End Farm, Manfield, Darlington (Jan. 21st).

SWINE FEVER :

Bucks.—Springfield Farm, Chalvey, Slough (Jan. 20th).

Ches.—Platts Cottages, Cotton Edmunds (Jan. 20th).

Cornwall.—Brane, Sancreed, Penzance (Jan. 19th).

Essex.—Hole Farm, Belchamp St. Pauls, Sudbury (Jan. 19th).

Lancs.—Schofield Allotments, Brunswick Street, Nelson (Jan. 17th).

Lincs.—Springfield Farm, Kirton Lindsey, Gainsborough (Jan. 16th).

Notts.—Holbeck, Worksop; Oak Dene, Guildingwells Road, Letwell, Worksop (Jan. 20th).

Staffs.—Tollgate Farm, Wattling Street, Brownhills, Walsall (Jan. 19th); Bank House Farm, Hyde Lea, Stafford (Jan. 20th).

Suffolk.—Upper Abbey Farm, Leiston (Jan. 17th); Shrubland Farm, Badingham, Woodbridge; Brickfields, Withersfield, Haverhill (Jan. 19th).

Warwicks.—Bishops Farm, Oldberrow, Henley-in-Arden, Birmingham (Jan. 16th); Upper Goldicote Farm, Goldicote, Stratford-on-Avon (Jan. 20th).

Yorks.—Queen Street, West Allotments, Swinton, Maxborough (Jan. 16th); North Lees Grange, Ripon (Jan. 19th); Ness Farm, Barlby Road, Barlby, Selby; Ludditch Farm, North Grimston, Malton; "Ferndale," Collier Lane, Shadwell, Leeds; Swindon Bank Farm, Pannal, Harrogate (Jan. 20th).

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LEGAL NOTES

Farmer's Cruelty to Rams.—In its issue of January 15th, the *Manchester Guardian* reported that allegations that a Kirkby Stephen (Westmorland) farmer "converted" two rams into shearlings so that the animals would bring a better price were made during an R.S.P.C.A. prosecution at Kirkby Stephen Magistrates' Court. Henry Watson (40), of Enterber, was fined £20 plus £13 costs, on a charge of allowing unnecessary suffering to be caused to the rams by unreasonably exposing them for sale in an unfit state.

Mr. T. M. Arnison, of Penrith, described the case as one of "deliberately inflicted cruelty." He alleged that Watson castrated the animals without the aid of a professional person or without an anaesthetic, and said this would be a source of acute pain. Instead of allowing the animals to lie quietly for three or four weeks in order to let the wounds heal he took them to the Ministry of Food's Kirkby Stephen collecting centre within a matter of days. "Why," asked Mr. Arnison, "did this man compel these miserable suffering beasts to be herded and crushed and buffeted and banged in that market with hundreds, possibly thousands, of milling sheep? The answer, in my submission, was to get by deceit a bigger profit than any dealer could have done." Mr. Arnison said that when taken to the collecting centre the animals were passed off as shearlings instead of rams. At that time the price paid for shearlings was 2s. 3d. a lb. and that for rams 1s. 3½ a lb. with the result that Watson received £8 6s. 5d. more than he should have done.

Evidence was given that after being passed by graders at Kirkby Stephen collecting centre the rams were taken to Colne slaughterhouse. They were there seen by a R.S.P.C.A. inspector who expressed the view that the rams must have suffered through having been exposed for sale so soon after castration.

Watson said he bought the rams for resale. He produced the castrator used, which was described as "humane, bloodless, safe and sure." It was a common practice among farmers to use this method without the presence of a veterinary surgeon or the use of a local anaesthetic.

The rams did not appear to be any worse for the operation and were quite normal when they were taken to the collecting centre. The rams' condition on reaching Colne must have been due to something which happened to them after they left his hands.

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Unidentified Specimens.—A parcel containing specimens was received at Cromwell House, Huntingdon, on January 3rd, 1953, and was presumably submitted by a member of the veterinary profession requiring a toxicological examination or possibly some nutritional investigation. The specimens were packed in two "Cow and Gate" milk food tins, in one of which there were portions of fish and in the other what appeared to be the stomach contents and portions of viscera of some mammal. No label or letter was found within the parcel, and no covering letter has been received. Enquiries made thus far have failed to trace the origin of the samples in question. Unfortunately the postmark was undecipherable.

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Six calves, none of which survived, were born on the farm of Mr. William J. Brown, Roughan, Dungannon. The dam was an Ayrshire cow, and each calf was about the size of a Cairn terrier.

HARRY STEELE-BODGER MEMORIAL FUND

Fourth List of Donations

The Appeal Committee again acknowledges with grateful thanks the following further donations to this Fund:—

	£	s.	d.
Total announced on January 17th	1,600	14	4
Mr. A. J. Beeson (Maidstone)	1	1	0
Mr. H. P. Blackie, Mr. J. C. Twist (Wigan) ...	1	1	0
Mr. J. L. Brain, Mr. P. N. Hull (Cheltenham) ...	3	3	0
Mr. H. B. Brandt (Nutfield) (farmer)	15	15	0
British Veterinary Association	262	10	0
Mr. James Brown (Invergordon)	10	10	0
Mr. A. Campbell (Stokesley)	2	2	0
Mrs. G. E. M. Candy (Stone)	1	1	0
Mr. W. B. Conn (Edgware)	1	1	0
Mr. H. M. M. Duff (Welshpool)	3	3	0
Miss D. N. Egginton (Solihull)		10	0
Mr. P. E. Emson (Bourne)	1	1	0
Mr. J. A. Flynn (Dublin)	1	1	0
Captain K. R. Gabb (Lowestoft)	2	2	0
Mr. P. K. Hall-Patch (Dibden Purlieu)	2	2	0
Mr. D. C. Harries (Fakenham)	1	1	0
Mr. P. S. Hastie, Mr. P. M. F. Sambrook (Ashford)	3	3	0
Holborn Surgical Instrument Co.	1	1	0
Mr. H. Holroyd (Blackburn)	3	3	0
Mr. L. Hughes (Tolworth)	2	2	0
Mrs. R. Hussey (Loughton)		10	0
Lieut.-Colonel J. S. Kingston (Parkstone)	1	1	0
Mr. E. G. Langford (Lingfield)	2	2	0
Lichfield & District Agricultural Society	5	5	0
Liverpool Agricultural Discussion Society	5	5	0
Mr. J. McCulloch (Abakaliki, Nigeria)	2	2	0
Mr. J. H. McGhee, Mr. T. J. Morgan (Warwick) ...	5	0	0
Mrs. M. H. Maclay (Much Hadham)	1	1	0
Mr. J. Millar, Mr. J. Edgar, Mr. J. Cameron (Wigtown)	5	5	0
Mr. G. S. Muir (Stowmarket)	1	1	0
Mr. W. H. Newey (Nuneaton)	1	10	0
Messrs. R. P. Parsonage & Partners (Shrewsbury) ...	3	3	0
Mr. L. E. Perkins (Redruth)	1	1	0
Mr. R. A. Philcox (Lewes)	1	1	0
Mr. E. L. Piatkowski (Sittingbourne)		10	0
Miss M. Pyke (Blackburn)		10	6
Dr. M. S. Reichert (Bechuanaland Protectorate) ...	10	10	0
"Rikki of Tuktaway" (Norwich)		5	0
Mr. G. A. Roberts (Cullompton)	2	2	0
Messrs. H. W. Robson & Son (Laurencekirk) ...	5	0	0
Dr. K. S. Roszek (Canada)	1	1	0
Miss E. E. B. Russell (Bexhill-on-Sea)	1	1	0
Major G. K. Shaw (Natal)	2	2	0
Mr. R. B. Smith (St. Ives)	1	1	0
Society of Women Veterinary Surgeons	10	10	0
South-Eastern Veterinary Association	10	10	0
Mr. D. L. Stewart (Shinfield)	5	5	0
Mr. H. Sumner (Liverpool)	5	5	0
Sutton Coldfield & District Canine Society	5	5	0
Miss D. I. Thorpe (Sutton Coldfield)	1	1	0
Mr. Tom. Threlkeld (Swaziland)	3	0	0
Mr. K. G. Towers (Leeds)	3	3	0
Major C. W. Townsend (Long Stanton)	1	1	0
Mr. P. Wait (Westhorpe)	1	1	0
Mr. C. B. Watson, Mr. A. B. Brook (Chichester) ...	2	2	0
Professor W. L. Weipers (Glasgow)	3	3	0
Miss R. Welch (Rickmansworth)		10	6
Mr. E. A. Wells (Entebbe, Uganda)	2	2	0
Mr. J. T. Wickens (Tonbridge)	1	1	0
Mr. E. Wilkinson (Derby)	5	5	0
Mrs. M. B. Wilson (Kirn)	1	1	0
Messrs. Wyleys Ltd. (Coventry)	5	5	0
Mr. A. Wyllie (Wimbledon)		10	6
Total	£2,045	17	10

All donations should be sent to: S. L. Hignett, Steele-Bodger Memorial Fund, B.V.A., 36, Gordon Square, London, W.C.1. Cheques, postal orders, etc., should be made payable to "Steele-Bodger Memorial Fund."

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LIVESTOCK IN ENGLAND AND WALES

The December, 1952, agricultural returns for England and Wales reveal that livestock numbers, as compared with December, 1951, show a small percentage rise in total cattle, and further increases in sheep and pigs.

The total number of cattle (including calves) increased by 53,000 (1 per cent.) on the year to 7,534,000. Cows and heifers in milk increased by 60,000 (3 per cent.), but heifers in calf declined by 8,000 (2 per cent.) and bulls by 7,000 (8 per cent.). Among "other cattle," males under one year old increased by 54,000 (13 per cent.) and females by 74,000 (7 per cent.). In the older classes of other cattle, there was a fall of 123,000 in total numbers, but males two years old and over showed an increase of 37,000 (7 per cent.).

Total sheep and lambs numbered 10,547,000, an increase of 533,000 (5 per cent.) on the year. Ewes for breeding increased by 267,000 (6 per cent.) to 4,814,000 but shearling ewes declined by 49,000 (4 per cent.). All classes of sheep and lambs under one year old were higher than a year ago and totalled 3,886,000 (an increase of 311,000 or 9 per cent.), ewe lambs retained for breeding showing an increase of 93,000 (11 per cent.).

The total of all pigs again increased and reached the record figure of 4,158,000, an increase on the year of 252,000 (6 per cent.). Female breeding stock totalled 488,000 (an increase of 28,000 or 6 per cent. on the year), sows in pig being higher by 25,000 (11 per cent.) and gilts in pig by 7,000 (9 per cent.). Boars being used for service increased by 1,000 (4 per cent.), but young boars being reared for service declined. Other classes of pigs increased by 231,000 (7 per cent.) to 3,605,000.

Total poultry showed a slight increase on the year. Fowls under six months were lower by 267,000 (4 per cent.), but ducks, geese and turkeys increased by 263,000 (10 per cent.).

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Erratum.—It is regretted that in our announcement of Mr. K. G. Morgan's appointment as Senior Scientific Officer to the Animal Health Trust (*Vet. Rec.* **65.** 46), the year of his graduation was given as 1943, whereas Mr. Morgan qualified from the London College in 1933.

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Laboratory Animals Bureau Congress.—The sixth congress of the bureau is to be held at the Royal Veterinary College, London, N.W.1, on Friday and Saturday, March 27th and 28th. Sir Harold Himsworth, Secretary of the Medical Research Council, will give the opening address.

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Weekly Wisdom

Singing is near miraculous because it is the near mastering of what is otherwise a pure instrument of egotism: the human voice.
—Hugo von Hoffmansthal (Selected Prose).

N.I. SIX-COUNTY MINISTRY PRECAUTIONS AGAINST JOHNE'S DISEASE

Affected Animals Purchased for Slaughter

In its issue of January 10th *The Irish News* states that as a precaution against the spread of Johne's disease in the area, the Six-County Ministry of Agriculture has offered to purchase and slaughter any animals which are found to be suffering from the disease. The announcement continues: "The presence of the disease should give rise to some anxiety and has resulted in special precautions being taken in respect of imported animals. It seems that the disease—for which there is no known cure—is very common across-Channel. It was unknown, or practically unknown, in the Six Counties until the last few years, but is increasing at an alarming rate: during the last three years it seems that 26 cases were confirmed on 19 farms. Practically all the animals affected were imported and the remainder had been in contact with imported stock. Once the disease becomes established in a herd, experience in England has been that it is extremely difficult to get rid of, even with rigorous disinfection and disposal of all suspected animals, combined with the rearing of calves separately from other cattle.

The incubation stage may last for two or three years and this, combined with the fact that there is no good diagnostic test at this stage, has prevented the cross-Channel authorities from stamping out the disease by making it notifiable."

Special Precautions

"To prevent its spread here the Ministry has announced special precautions. All cattle and sheep from Britain must pass through the Ministry's quarantine station where they will be held for a period of three weeks. During this period the Ministry's Veterinary Research Division will endeavour to identify any animals which may be harbouring the disease. The only exception is in the case of Blackface breeding ewes from the Western Highlands of Scotland, which may be brought from farm to farm as previously. Licences to import will be required in both cases.

"The Ministry also urges farmers and livestock owners to notify the Ministry immediately if they suspect that any of their animals are affected with the disease. The Ministry is prepared to purchase and slaughter any affected animals. Where there is any progressive loss in condition and yield without loss of appetite, and especially if combined with diarrhoea, the fact should be reported at once to the Ministry. Notification is voluntary, but owners are strongly urged to report suspicious cases at once. Clinical evidence of the presence of the disease must be supported by a certificate from the Ministry's Veterinary Research Division after examination of specimens from the case before any animal can be purchased by the Ministry.

"It seems that exception is made in favour of Blackface ewes from the Western Highlands, because sheep from these mountain areas have not so far been found to be affected. All other sheep, including Blackface rams, must pass through the quarantine station. Generally speaking importations will be restricted as far as possible to males so that any introduction of new blood will be by way of selected bulls and rams rather than by unrestricted female importation."

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PROPOSED AMENDMENTS TO THE PENICILLIN ACT

On Tuesday last the Therapeutic Substances (Prevention of Misuse) Bill was introduced into the House of Lords. The Bill proposes that substances covered by the Penicillin Act may be sold or supplied, under suitable safeguards, for purposes other than medical. This is to enable penicillin to be included in the diet of livestock.

The Bill also provides for additional substances to be brought within the scope of the Penicillin Act, under which antibiotics may be supplied only on a doctor's prescription.

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LIABILITY FOR DAMAGE DONE BY ANIMALS

The Report of the Committee on the Law of Civil Liability for Damage done by Animals, of which Lord Goddard, Lord Chief Justice, was the chairman, was published during the week and will be dealt with more fully in our next issue. It recommends removal of present limitations on the right to shoot a trespassing dog. When a farmer or occupier shoots such a dog it should be a defence to prove that the dog was trespassing; that he reasonably believed cattle or poultry had been or would be injured; and that police were notified within 48 hours.

Other recommendations are that:—

The distinction in law between tame and wild animals should be abolished. Except in cattle trespass, liability for their acts should be based on negligence.

Action for cattle trespass, one of the oldest forms known in common law, should be retained but recoverable damages limited to damage to land or crops.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

CLIPPING

Sir,—I am the person who recommended the clipping at the Fat Stock Show, the idea deriving from the old horse days when clipping was practised. The clipping machine was the finest invention ever made for the horse. During the nasty foggy weather in winter I have seen horses which have never been dry for days on end, even after being in the stables over the week-end, and no one can keep a sweating animal healthy. Moreover, I feel such confidence in the clipping idea that I suggest that the Veterinary Advisers to the Smithfield Show ask the Committee to insert a full-page notice in this year's schedule suggesting that all the animals are "bellied" prior to the show as a precaution against respiratory troubles.

And now to Mr. Bateman's letter. During the War of 1914-18 I was for a time Chief Veterinary Surgeon at a Base Hospital and it was the custom there to clip all animals prior to their going to Remounts: whether it was an Army Order or a notion of the Colonel I never knew. Although I agree with Mr. Bateman that it was wrong to clip them as we did, nevertheless we had very little respiratory trouble and no complaints from Remounts nor from the Front Line. Clipping, however, was a cause of horses suffering from debility because no extra food was allowed them. Had they been given a little extra they would have wintered without any trouble.—Yours faithfully, G. C. Lancaster, Eastwick House, Evesham. *January 19th*, 1953.

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THE HARRY STEELE-BODGER MEMORIAL FUND

Sir,—A few years ago, in a letter to these columns on the subject of "bovine infertility," I stated that when owners of livestock fully appreciated the "trinity" of "breeding, feeding and management" and all that this implies and includes, they would realise that for the most part the control of disease in their herds rested largely in their own hands.

During the war years, with a natural political awakening amongst our people to the fact that, as an island power, we should rely on our own agriculture for our food supply, I noticed, and wrote to these columns, pointing out, that I was finding it extremely difficult to determine the cause of increased infertility in our dairy herds, and that, in short, the whole picture of its etiology was changing. Judging by subsequent communications and articles, I was by no means unique—no Christopher Columbus!

Recognising that to-day we shall be consulted on matters quite outside the usual fields of medicine and surgery, the B.V.A. has held two conferences on grassland. The papers presented, and the ensuing discussion, reflect great credit upon our profession, which appears as capable of adjusting itself to changing conditions as the duck does to water!

With the same foresight and, fortunately for the profession, with a wealth of talent amongst younger graduates to advise it, the B.V.A. has launched an appeal in memory of one who did more than anyone else to tell the farmer what we could give if we were consulted more often: in effect, that it was absurd to restrict his calls on us to a difficult calving or a case of milk fever.

We must give this fund our fullest support and bring it to the notice of our clients and so ensure the fulfilment of its purpose, which in turn is different from anything else to date, namely, to enable our graduates to visit other countries and to study and comment on what I have referred to above as the "trinity," *i.e.*, the field of preventive medicine, which is the job of both the medical and the veterinary professions.—Yours faithfully, J. F. D. Tutt, "Rothiemurchus," St. Cross, Winchester.